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UNIVERSITY OF ILLINOIS

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APRIL 1912

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GEORGIA STATE COLLEGE  
OF AGRICULTURE



REGISTER 1911-1912

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ANNOUNCEMENTS  
1912-1913

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SERIAL No. 181



UNIVERSITY OF ILLINOIS  
1912-1913

*Announcement of*

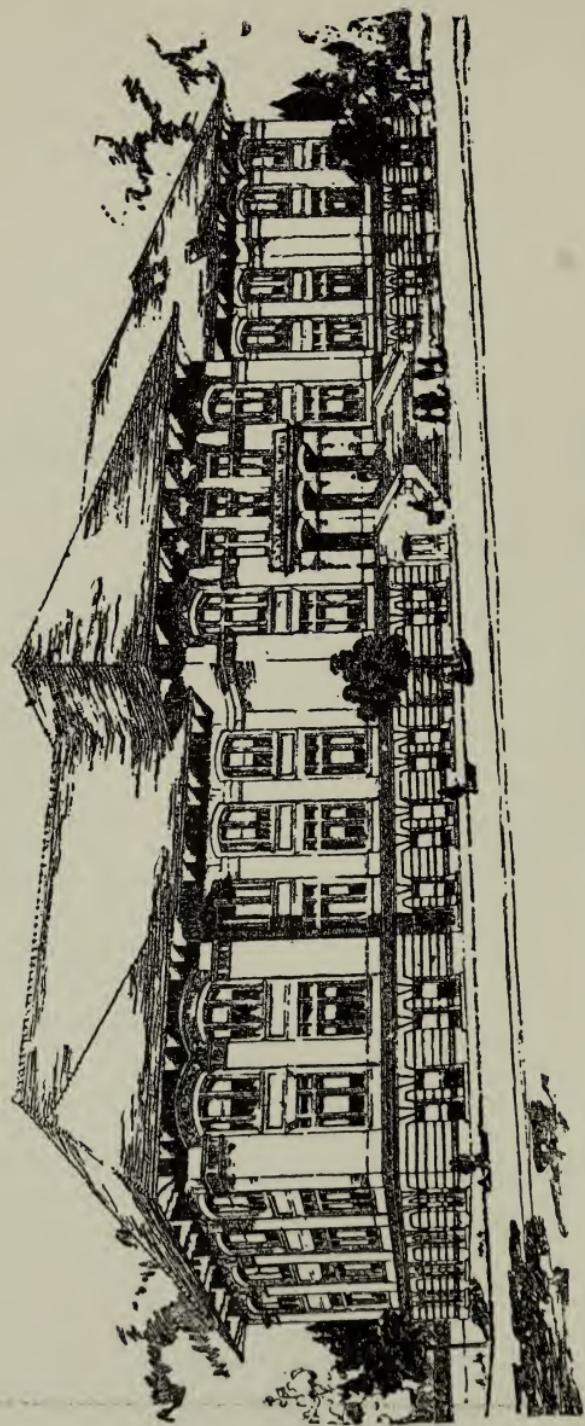
*The Georgia State College  
of Agriculture*

For the Session of 1912-13  
With a Register of Officers and  
Students for Session 1911-12

ATHENS, GEORGIA

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The McGregor Co.  
Athens.



GEORGIA STATE COLLEGE OF AGRICULTURE.

# CALENDAR

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<b>July 1, Monday:</b>	Opening of the Summer School.
<b>Aug. 3, Saturday:</b>	Close of the Summer School.
<b>September 14:</b>	Meeting of the Faculty.
<b>September 16:</b>	First day of Registration.
<b>September 16-19:</b>	Examinations for Entrance.
<b>September 18:</b>	Opening of the First Term.
<b>November 28:</b>	Thanksgiving Day.
<b>December 21:</b>	Close of the First Term.
<b>January 2:</b>	Opening of the Second Term.
<b>January 2:</b>	Opening of the Cotton School.
<b>January 19:</b>	Birthday of General R. E. Lee.
<b>February 20:</b>	Exercises in commemoration of the 112th Anniversary of the Demosthenian Society and the 93rd Anniversary of the Phi Kappa Society.
<b>February 22:</b>	Washington's Birthday.
<b>March 15:</b>	Close of the Second Term.
<b>March 17:</b>	Opening of the Third Term.
<b>April 19-26:</b>	Encampment of Cadets.
<b>May 20:</b>	Last date for submission of prize essays.
<b>June 9:</b>	Meeting of the Board of Visitors.
<b>June 12:</b>	Annual Session of the Board of Trustees.
<b>June 11-13:</b>	Examinations for entrance.
<b>June 14, Saturday:</b>	8:30 P. M., Sophomore declamation contest.
<b>June 15, Sunday:</b>	11:00 A. M., Baccalaureate Sermon.
<b>June 16, Monday:</b>	10:30 A. M., Exercises of the undergraduates representing the branches of the University. 4:00 P. M., Military exercises and drill.
	8:30 P. M., Champion debate between the Phi Kappa and Demosthenian Societies.
<b>June 17, Tuesday:</b>	10:30 A. M., Business meeting of the Alumni Society. 12 M., Oration before the Alumni Society.
	4:30 P. M., Junior orations and delivery of Sophomore cup.
<b>June 18, Wednesday:</b>	Commencement Day. Close of the 113th annual session.

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# THE GEORGIA STATE COLLEGE OF AGRICULTURE

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## HISTORICAL STATEMENT.

The Georgia State College of Agriculture was organized in accordance with the Act of the General Assembly of the State passed July 21st, 1906. This institution is an outgrowth of the State College of Agriculture and the Mechanic Arts, which was founded as a coördinate department of the University of Georgia on May 1, 1872, upon the transference of the funds arising from the sale of Georgia's interest in the landscrip to the Trustees of the University. Its further endowment was made possible from time to time by additional appropriations provided through the generosity of the federal government. The State, however, realizing that agriculture represented its principal industry, decided by legislative enactment to differentiate and endow the work of the Agricultural College in order that it might more fully serve the chief interest of all the people.

The preamble to the Conner Bill contains the following statement, which sets forth fully the reasons for enlarging the work of the State College of Agriculture along both educational and research lines: "Agriculture is the principal industry of the State, and the main source from which the material prosperity of the State must come. Experience has demonstrated the great value of agricultural education in permanently improving the soil, multiplying its yield and increasing the value of its products. There is a growing demand by the people of the State for agricultural education, and for the practical benefits of scientific research in this line, and for improved methods in farming." The law provides that the State College of Agriculture shall be under the direction of a separate Board of Trustees, consisting of eleven men, three selected from the Trustees of the University proper, three from the directors of the Georgia Experiment Station, including the Commissioner of Agriculture, and five from the State at large. The Board has the same functions and exercises the same authority as that of the trustees of similarly organized and coördinated divisions of the University, but is subject, in accordance with the provisions of the constitution of the State, to the general control of the University Trustees.

**BOARD OF TRUSTEES.****From the Trustees of the University.**

JOHN W. BENNETT, Waycross, 11th Congressional District	Term expires Aug. 13, 1915.
JOHN T. NEWTON, Madison, 8th Congressional District,	Term expires Aug. 13, 1915.
DUDLEY M. HUGHES, Danville, 3rd Congressional District,	Term expires Aug. 13, 1913.

**From the Experiment Station Board:**

LAMARTINE G. HARDMAN, Commerce, 9th Congressional District,	Term expires Aug. 13, 1914.
THOMAS G. HUDSON, Atlanta, Commissioner of Agriculture,	Term expires Aug. 13, 1914.
ROBERT C. NEELY, Waynesboro, 11th Congressional District,	Term expires Aug. 13, 1916.

**From the State at Large:**

JAMES J. CONNER, Cartersville, 7th Congressional District,	Term expires Aug. 13, 1912.
JUDSON L. HAND, Pelham, 2nd Congressional District,	Term expires Aug. 13, 1916.
GEORGE GILMORE, Worthen, 8th Congressional District,	Term expires Aug. 13, 1916.
ANDREW J. McMULLAN, Hartwell, 8th Congressional District,	Term expires Aug. 13, 1916.
JAMES A. THRASH, Greenville, 4th Congressional District,	Term expires Aug. 13, 1912.

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**EXECUTIVE COMMITTEE.**

Messrs. Hardman, Newton, and McMullan.

# THE GEORGIA STATE COLLEGE OF AGRICULTURE

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## STAFF OF INSTRUCTION.

DAVID CRENSHAW BARROW, LL.D., Chancellor.

ANDREW McNAIRN SOULE, B.S.A., Sc.D., President; Director of Farmers' Institutes.

JOHN RICHARD FAIN, B.S., Professor of Agronomy.

ALFRED AKERMAN, A.B., M.F., Professor of Forestry.

MILTON PRESTON JARNAGIN, B.S.A., Professor of Animal Husbandry.

THOMAS HUBBARD McHATTON, B.S., Sc.D., Professor of Horticulture.

ROBERT JOHN H. DeLOACH, A.R., A.M., Professor of Cotton Industry.

WILLIAM ARCHER WORSHAM, JR., B.S., A.M., Professor of Agricultural Chemistry.

WILLIAM MILLS BURSON, D.V.M., Professor of Veterinary Science.

LEROY COLLIER HART, B.S., E.E., Professor of Farm Mechanics.

HENRY HINO ROTHE, D.V.M., Instructor in Veterinary Science.

ROBERT M. MURPHY, Instructor in Animal Husbandry.

PHARES OBADIAH VANATTER, Superintendent of Field Demonstrations.

ETHEL REESE, Secretary to the President.

LOUIE HULL SMITH, Librarian.

AMBROSE PENN WINSTON, Farm Foreman.

CHESTER HORACE McLEMORE, Tutor in Animal Husbandry.

JOSIAH TATTNALL KOLLOCK, Student Assistant in Forestry.

WILBE WADFORD WILSON, Student Assistant in Farm Mechanics.

ROSS RENFROE CHILDS, Student Assistant in Agronomy.

MAY EPPS, Assistant Stenographer.

OLIVE BELL, Mailing Clerk and Stenographer.

## DEPARTMENT OF AGRICULTURAL EXTENSION.

GUY WITSOTZKEY FIROR, B.S., M.S., Secretary of Extension Department, Horticulture.

JOHN WILLIAM FIROR, B.S., Instructor in Horticulture.

JAMES PHILANDER CAMPBELL, (In coöperation with U. S. Department of Agriculture), Professor, Schools.

MARY E. CRESWELL, Instructor, Schools.

JAMES WILLIAM HART, (In coöperation with U. S. Department of Agriculture), Professor, Dairy Husbandry.

JOHN L. BISHOP, Adjunct Professor, Animal Husbandry.

LeROY LUCIEN JONES, B.S., Instructor, Poultry Husbandry.  
 LEONIDAS MYERS CARTER, Adjunct Professor, Soils.  
 DAVID D. LONG, B.S.A., Adjunct Professor, Soils.  
 ROBERT S. HOLLINGSHEAD, A.B., Instructor, Soils.  
 JOHN E. TURLINGTON, B.S.A., M.S., Adjunct Professor, Agronomy.  
 LOY EDMUND RAST, B.S., Instructor, Agronomy.  
 PEARL MORRIS, Clerk and Stenographer.  
 VERA FRANCES MORRIS, Assistant Stepographer.

#### DISTRICT CORN CLUB ORGANIZERS.

MILTON CLEVELAND GAY, B.Ph., Assistant in School Extension.  
 GEORGE VIVIAN CUNNINGHAM, " " " "  
 JOHN KYRGESS GILES, B. S. A., " " " "  
 WILLIAM BRADFORD, A.B., M.D., " " " "  
 JAMES WALTER HENDRICKS, A.B., " " " "  
 CLIFFORD M. JAMES, B.S., " " " "

#### SPECIAL LECTURERS.

ERNEST LEE WORSHAM, B.S., Entomolomy.  
 BENJAMIN ALBERT CRANE, B.S., Cotton Grading.  
 ROBERT HATTON LOVEJOY, B.S., B.L., Forest Law.

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HENRY CLAY WHITE, Ph.D., Sc.D., D.C.L., LL.D., Professor of Chemistry, Terrell Professor of Agricultural Chemistry.  
 JOHN PENDLETON CAMPBELL, Ph.D., Professor of Biology.  
 CHARLES MORTON STRAHAN, C. and M.E., Professor of Civil Engineering.  
 JOHN HANSON THOMAS McPHERSON, Ph.D., Professor of History and Political Science.  
 CHARLES MERCER SNELLING, A.B., Sc.D., Professor of Mathematics.  
 JOHN MORRIS, A.M., Professor of English Language and German.  
 JOSEPH LUSTRAT, Bach. ès Lett., Professor of Romance Languages.  
 ROBERT EMORY PARK, JR., A.M., Litt.D., Professor of Rhetoric and English Literature.  
 THOMAS JACKSON WOOFTER, A.M., Ph.D., Professor of Philosophy and Education.  
 JOSEPH SPENCER STEWART, A.M., Professor of Secondary Education.  
 JOSEPH ALEXANDER ATKINS, First Lieut. U. S. Infantry, Commandant of Cadets.  
 STEADMAN VINCENT SANFORD, A.B., Junior Professor of Rhetoric and English Literature.

LINVILLE LAURENTINE HENDREN, Ph.D., Professor of Physics and Astronomy.

JOHN MOORE READE, Ph.D., Professor of Botany.

ERNEST LEE GRIGGS, Associate Professor of Civil Engineering.

URIAH HAROLD DAVENPORT, B.S., Associate Professor of Electrical Engineering.

ROSWELL POWELL STEPHENS, Ph.D., Associate Professor of Mathematics.

HOMER VAN VALKENBURGH BLACK, Ph.D., Associate Professor of Chemistry.

ROBERT PRESTON BROOKS, B.A., (Oxon.) Adjunct Professor of Georgia History and Sociology.

WILLIAM OSCAR PAYNE, A.M., Associate Professor of History and Political Science.

MARION DERELLE DuBOSE, A.M., Adjunct Professor of English Language and German.

SANDFORD MEDDICK SALYER, A.B., Instructor in Rhetoric and English Literature.

ROBERT SPENCER POND, Ph.D., Instructor in Mathematics.

ERALBERT TALMADGE MILLER, B.S.C.E., Instructor in Physics.

CHARLES HOLMES STONE, Student Assistant in Drawing.

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### GENERAL STATEMENT.

The Georgia State College of Agriculture constitutes an integral part of the University system, and while it has certain buildings, lands and equipment set aside for the special use of its corps of instructors and students, its work in general is closely associated with the University proper, so that agricultural students enjoy all the advantages which a great university system affords. These advantages include instruction, advice from the professors in other colleges, use of the general libraries and scientific laboratories, and membership in the various class and society organizations. This is most desirable, since classroom training is but a part of a man's education.

### AGRICULTURAL HALL.

The new agricultural hall was dedicated on January 18th, 1909, with appropriate ceremonies. The building is 264 feet long by 72 feet wide, three stories in height, beautifully proportioned, and is, architecturally, a very pleasing structure. It is constructed of cream-colored pressed brick, Bedford limestone being used for the foundation, with terra cotta trimmings in designs symbolical of the purpose to which the building is devoted. The roof projects so as to form wide eaves and is covered with red

tile. The building contains 60,000 square feet of floor space and is designed especially for instruction in agriculture and the prosecution of research work, the two ends to which it was dedicated. It contains sixty large rooms, and few buildings devoted to agricultural instruction afford better facilities for the work. Provision has been made for administration offices, and for suites of rooms containing offices, private laboratories, class rooms, and student laboratories for the departments of agronomy, animal husbandry, dairy husbandry, cotton industry, horticulture, forestry, farm mechanics, veterinary medicine, bacteriology, entomology, agricultural chemistry, and extension teaching in agriculture. Besides these several suites of rooms, there are four large class rooms, a library and reading room, and an auditorium with a seating capacity of four hundred. The building is heated by steam and lighted by electricity, and will have the necessary refrigerating apparatus for the manufacture of dairy products, and the investigation of plant and animal diseases.

It proves admirable quarters for the students of the State College of Agriculture and those charged with the conduct of its work, the lack of which in the past has been responsible in large measure for the failure of agricultural education to make greater progress.

### THE CAMPUS.

The grounds of the College of Agriculture are situated about a half-mile from the present center of the University. The College building being situated upon the brow of a commanding hill, there are unusual advantages for landscape gardening and the making of a most beautiful campus about the College of Agriculture. This work is going rapidly on and soon there will be a large collection of specimen trees and shrubs about the building as well as model roads and walks. The campus affords marked advantages to those interested in landscape gardening and in studying the native trees of our State, as well as those imported from other countries.

### THE LIBRARY.

The library occupies a large, well-lighted room on the main floor of the Agricultural Hall and is fully equipped with Library Bureau furniture. A good beginning has been made in the collection of standard books on all Agricultural subjects and of reference books, including Government publications, stud, herd, and flock books of the leading Breeders' Associations, the New International Encyclopedia, and Standard Dictionary. An effort is being made to complete the files of Bulletins of the Agricultural Experiment Stations and of technical magazines.

About seventy Agricultural magazines, both monthlies and weeklies, and a number of the county dailies are received in the library and serve to keep the students in touch with the progress of events along the lines in which they are interested. As soon as possible volumes of the principal magazines will be bound and will form an important part of the reference collection.

The library is open for the use of the students from 9 till 6 on week days and books may be taken out for home use for a period of two weeks.

### **LABORATORIES.**

The success of a course of instruction in agriculture will depend largely on the thoroughness and efficiency of the training provided in the various laboratories. Ample laboratory space has been provided, while the furnishings and equipment are of the latest design and the best that can be secured for the particular end in view. Below will be found a brief description of those laboratories which have been furnished and are ready for use at the present time.

### **AGRONOMY LABORATORIES.**

Two laboratories, occupying the east end of the main floor, are used by the department of agronomy. One of these is furnished with center and wall desks and laboratory tables for soil work. A complete equipment of soil tubes, shakers, centrifuges, water baths, and ovens has been provided so that each student may work out the problems assigned him independently. The apparatus is used in a series of experiments designed to give the student an insight into the physical and mechanical condition of the various types of soils occurring in the state.

The other laboratory is devoted to the study of farm crops, including seed testing, cereal judging, grasses and forage crops. It is provided with wall cases for specimens, and laboratory tables for the use of the students. Various kinds of seed racks and seed-testing apparatus constitute a part of the equipment. A sufficient supply of sieves, magnifiers, and microscopes are available for the prosecution of the various lines of work, and ample facilities are given all students who wish to specialize.

### **ANIMAL HUSBANDRY LABORATORIES.**

In the College building about seven thousand feet of floor space has been set aside for laboratories to be used in theoretical and practical instruction in dairying. Sufficient funds have not been available to equip this department fully up to the present time, though enough apparatus has been secured to get the work well

under way. In the butter-making laboratory there are various makes of separators, both hand and power, which not only give the student a knowledge of how to set up and operate centrifugal separators, but enable him to determine from actual tests the make, type, and capacity of machines that will best meet his individual needs, both for factory and farm dairies. So far this laboratory has been equipped more in the nature of a farm dairy than as a centralized creamery, and the churns and butter workers are of small capacity. Additional apparatus will have to be purchased next year, as the 46 men taking work in dairying the past year overtaxed the present equipment. Factory machines will be installed later.

The milk-testing laboratory is a well-lighted, spacious room, in which there are several models of Babcock testers, both hand and power design. The importance of a rapid and accurate means of determining the amount of butter fat in skim milk, whole milk, and cream has become duly recognized, and no one, either producer of milk, or manufacturer of butter and cheese, can successfully conduct his business without being familiar with this test. Various methods for determining the lactic acid content of milk are available, and the students are made thoroughly familiar with this important phase of successful dairying. In addition to the above tests, facilities are provided for instruction in determining the solids not fat, as well as making curd tests.

In recent years, under prevailing market conditions, the necessity for sanitary, wholesome dairy products that will stand long storage and transportation by rail has increased to such an extent that the pasteurization of milk and cream has become one of the important branches of the dairy industry. For this reason a separate pasteurizing laboratory has been provided in the dairy department.

In the production of palatable, sanitary products which will command the highest prices on the open market, it is necessary that the producer have some means of controlling the temperature of the milk during different stages while it is being prepared for the consumer, or in the ripening, storing, and holding of the different dairy products. Ample refrigerators have been provided for conducting experimental work along these lines.

Herd, flock, and stud books of most of the leading breeders' associations have been secured, so that the students are familiarized with the different methods and forms of tabulating and keeping pedigrees. These books are used as a supplement to the work in animal breeding, in familiarizing students with the combinations of blood lines that have gone to produce the highest type of animal.

On the College farm several breeds of live stock are maintained. Accurate records of their feed and production are kept, and the various experiments in breeding and feeding supplement and verify the work given in the laboratory and class room.

### HORTICULTURAL LABORATORIES.

There are three laboratories in this department. A student laboratory and a private laboratory are in the Agricultural College building, and the third, a spraying laboratory, is on the horticultural grounds, which are located about four hundred yards southeast of the building. The students' laboratories will accommodate about thirty men, and are fitted with the necessary apparatus. The private laboratory, containing a culture room, fume hoods, and other essential fixtures, is reserved for research work pertaining directly to horticulture. In the office of the department, which connects the student and private laboratory, is a vault for the safe keeping of records and other valuable papers. Besides the above, there is a barn and a tool-shed, which afford ample room for the storage of all implements necessary on a fruit farm.

### COTTON INDUSTRY LABORATORY.

A systematic study of cotton fibre with a view to the improvement of the fibre and the increase in yield, depends upon laboratory facilities, and as the courses offered in the department of cotton industry will be largely laboratory courses, provision was made for every known facility for conducting the work. Possibly it will be some time before all apparatus incident to the work can be purchased, but the laboratory is fitted with strictly up-to-date equipment, and is in perfect working order. Ample facilities are offered for a study of the modern methods of bleaching and mercerization, and for experiments in dyeing the cotton fibre; for combing and mounting the different varieties of cotton in a comparative study of individual merit; for an investigation of the basis on which classification and grades of lint cotton depend; and for ascertaining the breaking strength of the individual fibres of all varieties and grades. For a study of the nature of cotton fibre the best and latest model student microscopes are used.

In connection with this department there is also a research laboratory to which graduate and special students have access. This laboratory was designed to work out problems of a more general nature as they arise in connection with the study of cotton breeding, the nature and causes of the loss in connection with milling cotton, and the like. Located as it is, in the center of

the cotton belt, it is believed that this laboratory will prove ideal for working out all problems connected with the South's greatest industry.

#### **FARM MECHANICS LABORATORIES.**

The Farm Mechanics Laboratories are located in the main building on the ground floor in the east end, and in the new Farm Mechanics Building just back of the Main Building. This building is a combination of brick frame and reinforced concrete. It is 40x100 feet inside measurements and is two stories high. The laboratory located in the Main Building is 33x70 feet, and is used for drawing and surveying.

It is equipped with 50 of the latest drawing tables with parallel attachments, blue print frame and washing pan. Blue prints can be made up to 36x40 inches. With the present surveying equipment ten parties may be put into the field for farm surveying. The surveying equipment consists of five complete Bustrom and Brady farm levels and compass combination instruments. Five Keuffel and Esser combination farm transits. One convertible engineering level and a transit is available for advanced work. There is a full line of tapes, pins, hatchets, poles and target rods for equipping each party. In addition to the above equipment six plane tables will be added during the year.

#### **FARM MACHINERY LABORATORY.**

The Farm Machinery Laboratory is located in the new Farm Mechanics Building, and occupies the whole of the second story. It is equipped with a full line of the latest farm machinery. An acetylene plant has been installed and its adaptability to the farm home illustrated, there being lights, heating and cooking attachments. A full line of pumps, pneumatic system, hydraulic ram, windmill and gasoline engines illustrating the different water supply systems will be installed.

A full supply of plumbing material, as is applicable to farm conditions, has been placed in the stock room and a plumbing stand for the practical illustrating of installing plumbing and drainage on the farm is provided.

#### **FORGE SHOP.**

The forge shop is located on the ground floor in the East end of the Farm Mechanics Building. It is equipped with twelve of the latest models of the Buffalo Forge Company's heavy cast-iron forges. The blast and exhaust for these forges is taken care of from the proper sized fans located in the supply room. These fans are driven by an electric motor which also supplies power for the emery wheel grinder and polisher. Each forge has coal

and water boxes and a full supply of forge tools. An additional equipment such as vises, drill, emery wheel, polisher and grinder and benches is provided.

### WOOD SHOP.

The wood shop is located in the west end of the ground floor and occupies the same sized room as the forge shop. The equipment of this shop consists of benches for twenty-six students, planer, matcher, rip and cut-off saw, band saw, and turning laths. Each bench is equipped with a full set of chisels, saw, mallet, try square, thumb guage, oil stone and oil can, and bench brush. A bench hook is supplied with each full bench equipment. Each bench has a vise attached.

### DISPLAY AND ASSEMBLING ROOMS.

Between the wood and forge shop is the display and assembling rooms and the supply and tool room. In the tool and supply room is kept a full supply of both wood, iron and steel for both shops. In addition is kept planes, saws, hammers, squares, etc., for the woodshop; drills, guages, callipers, etc., for the forge shop. The display and assembling room is for the use of the students in putting together furniture and other wood work, also for the display of models for farm buildings.

The class room in which all the lectures and recitations are held is located in the Main Agricultural Building, next to the drawing and surveying laboratory. It is equipped with fifty-two adjustable arm seats, lecture desk, blackboard, etc. The lecture desk has both water, gas and sink connections.

### VETERINARY SCIENCE LABORATORIES.

The laboratories of this Department consist of several large rooms occupying the west end of the main floor of the College building. A small room opens into each of the large laboratories, the arrangement being adequate to accommodate the classes in laboratory work and for the storage of the various materials necessary.

The laboratories are well lighted, have a north exposure admirably suited to microscopic work, and are supplied with water, gas, and electricity.

The histological and pathological laboratory is furnished with double biological desks which are fitted with drawers and compartments for microscopes and other instruments and accessories used by the students in the work of these courses. Cicrotomes, a Naples Water Bath, mounting media, stains and reagents, with the necessary equipment of glassware are supplied for the use of

students. A large wall cabinet in this room contains an exhibit of specimens and models of diseased organs and parts.

A steel enameled instrument cabinet with a fine equipment of surgical instruments occupies a corner of the private laboratory.

A small room in the suite is fitted up as a pharmacy. Here is found a large stock of drugs and medicines used in veterinary practice, together with an equipment of percolators, filters, mortars and pestles, scales, pill tiles, etc., for the study of *Materia Medica* and Pharmacy. A case of specimens of nearly two hundred crude drugs is also a part of the equipment.

The bacteriological laboratory devoted to the study of disease producing germs is fitted with biological desks, wall cabinet, wall desk, and cabinet of microscopic slides. This laboratory is equipped with high power microscopes with the best oil immersion lenses, hot water bath, steam pressure sterilizer, hot air sterilizer, incubator, culture media and all necessary accessories.

The small room connected with this laboratory is so constructed that it is free from draughts of air and temperature variations are reduced to a minimum. This is used as an incubator room and is fully equipped.

An equipment of skeletons, models and charts of farm animals are used to illustrate the studies of anatomy during the warmer months.

#### **THE VETERINARY HOSPITAL.**

The veterinary hospital recently built is provided with box stalls for sick animals, bath stall, clinic room, operating room, dissecting room, office and dispensary, and room for attendant. A complete equipment of hopples, side lines, slings, casting harness and operating tables is provided together with dental, operating and obstetrical instruments and appliances. Clinics at which sick or injured animals are treated free of charge are held at stated periods throughout the school year, and students are trained in the diagnosis and treatment of diseased animals and are required to prepare and administer medicines by the various methods. Especial attention is paid to instruction in the care of sick and injured animals, and the hygienic conditions which should surround them. A score card system of examination of animals for diseases, unsoundness and blemishes is used.

The dissecting room is used during the colder months in the study of anatomy and physiology. Students are required to dissect and study the various parts of farm animals and to observe the location of the internal organs and the principal blood vessels, nerves and other structures.

### HOG CHOLERA SERUM.

The 1911 session of the General Assembly passed a Bill appropriating the sum of \$3,000 for the purpose of equipment and manufacture by the veterinary department, of Dorset Niles Hog Cholera Serum. This substance is the best known preventive of cholera in swine, and the manufacture by the College is for the purpose of instructing the students concerning swine diseases and the process of manufacture and administration. The serum is supplied to swine owners at cost of production on orders from the State Veterinarian.

### AGRICULTURAL CHEMISTRY LABORATORIES.

The courses of instruction offered in this department are designed to prepare students for practical work. Well-equipped laboratories are necessary that this may be done.

The laboratories occupy the west end of the top floor of the College building, the main laboratory being well ventilated and lighted from three sides. These laboratories are well equipped with new and modern desks, hoods, tables for microscopic work, and apparatus, accommodating sixty to seventy-five students. Adjoining the main laboratory is a well-lighted balance room equipped with the most accurate balances.

Adjoining the instructor's office is a private laboratory separated from the main laboratory by the store room which opens into both laboratories. This laboratory is equipped for the analysis of soils, feeds, fertilizers, waters, etc.

Each desk in the laboratory is supplied with gas, water and sinks. Ample facilities are offered for students specializing in the different branches of analytical work, such as soils, feeds, and other agricultural products.

The library is supplied with a number of the best reference books on chemical subjects.

### THE COLLEGE FARM.

Contiguous to the building and extending in the rear for more than a mile lies the College farm, consisting of 830 acres. This land is varied in character; some of it is rough and broken, while other sections are fairly level; portions are well wooded, and a diversity of soils is met with. This is not objectionable from one point of view, as it will enable tests to be made which will be applicable to the types of soil found in many sections of the state.

For a number of years a large part of the land has been rented and handled in a very careless manner. No crop rotation has been followed, and very little live stock has been kept on the

farm. As a result, the land is badly eroded in many places, and in poor physical condition. Winter and summer legumes are now being sown for the purpose of adding nitrogen and humus to the soil. Attention is being given to the construction of terraces and drains, and much loose stone and trash has already been removed from the land. While these operations are costly, they form an excellent object lesson for students in the reclaiming of exhausted soils, and it is only a question of time when the farm will be put on a highly satisfactory basis from both a physical and a financial standpoint.

The farm has been accurately surveyed and mapped; first with the idea of beautifying it as fast as funds become available by laying out the necessary roads and walks and locating such additional buildings as will be required from time to time with due regard to desirable landscape effects; and second, by the U. S. Department of Agriculture, so that all the soil types found might be defined and their physical characters ascertained. Thus when experiments are undertaken combining a physical and chemical study of the soils, results of accuracy and value may be expected.

#### THE COLLEGE BARNs.

The funds available for the erection of barns were so limited that these structures have been made very plain, though substantial. As the cost of these buildings is low, they can be copied advantageously by any farmer, a consideration of much practical importance. The dairy barn is 40x70 feet, and contains stalls for thirty cows and seven horses, besides two box stalls. There is also an office, a milk room and a boiler house. A 135-ton silo is connected with the barn by a feed-mixing and weighing room, and there is ample space for the storage of rough feed. A bull house, the necessary paddocks for young stock, a blacksmith shop, machine shed, and individual hog houses have also been erected near the dairy barn.

During the past year a beginning was made at erecting the main stock barn on the College farm. However, only a sufficient amount of money was available for building, and partially completing the storage space of this barn. The part which has been erected is of the most modern construction, and nothing but the best material has been used. It is 40x120 feet, and 40 feet high. An office, bed-room, and storage room have been provided on the first floor, and the remainder of this floor will be used for grain and feed bins, and a mixing and grinding room. The entire second story is for roughage, and has a capacity of 500 tons of loose hay. This barn, when completed, will represent an investment of approximately \$10,000, and the herds have grown to such size that it will have to be completed within the next year.

**LIVE STOCK.****The Dairy Herds.**

The establishment of herds and flocks is an expensive undertaking, and the limited funds available made it necessary for the College to exercise care and discretion in the organization of this feature of the work. Substantial progress is being made, however. Eleven pure bred Jersey females and one bull are now owned by the College, and in addition there are forty grade Jerseys in the herd. The Holstein herd consists of one bull, eight pure bred females, and five grade heifers. There are twenty heifers that will soon be in milk and will be used for either enlarging the herd or replacing the more inferior aged cows.

**The Beef Herd.**

A considerable portion of the College farm is in a depleted and worn condition. Sufficient funds have not been available for rapidly improving this abandoned land. For the present it is being utilized as a beef ranch. The herd consists of 30 high grade Herefords and one registered Hereford bull. This affords a valuable object lesson in utilizing the unoccupied land, as well as affording representatives of the beef type for stock judging with the students.

**The Hog Herds.**

A herd of pure bred Tamworths (representatives of the extreme bacon type of hog), and Berkshires are maintained on the farm. Experiments in cross-breeding are now under way. Feeding trials are being made to determine the efficiency of various grazing crops and grain rations for producing pork cheaply.

**Work Stock.**

A total of 18 horses and mules are owned by the College farm. The mules are of superior quality and represent different types, including medium heavy plantation mules, sugar mules, and heavy draft mules. The stallion and breeding mares are also used as farm workers, and all of the stock is used for teaching work in stock judging. On account of this requirement, the department hopes to maintain a greater number of animals, and of more types than will be absolutely needed for farm work, and all of the herds should be increased rapidly.

**Horse Breeding.**

The stud consists of one pure bred Percheron stallion and three high grade Percheron mares, besides one draft filly and one trotting bred mare.

On account of the importance of this work, both from the standpoint of increasing the work stock on the College farm, and the beneficial demonstration for the students, and the farmers of the state, the work in this department will be prosecuted as rapidly as funds will permit.

#### THE DEMONSTRATION FIELD.

A field of twenty acres has been set aside for experimental work. This area of land has been subdivided into more than 1,000 plats, ranging in size from  $\frac{1}{50}$  to  $\frac{1}{10}$  of an acre. Through the medium of this experimental field nature is constantly being asked questions, and new facts of interest are being brought to light by actual field tests; the value of principles and theories developed through laboratory research is determined, and thus the education of the student is made more perfect and complete, since he not only receives instruction in theory in the class room, but has the underlying scientific principles fully demonstrated to him in the laboratory, and sees the actual results which follow the application of these principles in farm practice.

Much attention will be given in the demonstration field to the development of strains of cotton, corn, and other farm crops of better quality than those ordinarily grown. The relation of fertilizers to crop production, the influence of various methods of cultivation, the value of crop rotations, and the merits of new and interesting varieties of farm crops will be fully tested, and not only will they be made a part of the knowledge of the student body, but the results will be prepared in pamphlet form and distributed free of cost to the farmers of the state. This feature of the work will thus be made to serve several useful and important economic purposes, as well as providing a definite type of information for agricultural students.

In connection with the department of cotton industry, there will be special plats set aside for conducting experiments in cotton breeding, both by selection and hybridization, and students will be given opportunity to see the results of their own experiments. There will also be arranged a variety test of all the leading varieties of cotton, and during the growing and harvesting seasons students will be required to write full descriptions of varieties, in order that they may be able to distinguish one variety from another, and at the same time acquire the habit of studying the cotton plant.

#### ORCHARDS AND GARDENS.

About thirty-five acres of the College farm have been set aside for horticultural purposes. The land is rolling, and, with the exception of one or two acres of sand, which will serve well for

truck crops, the soil is red clay. The field has been plotted and a variety orchard planted, in which all the varieties of apples, pears, peaches, plums and other fruits recommended for this section are well represented, so that a comparative study of their qualities can be easily made. As rapidly as funds will permit, a truck garden will be brought into shape, experimental plats laid out, a commercial orchard started. A plantation of small fruits is already well established. For the benefit of the fruit growers at large the horticultural grounds will serve as a testing field for all new varieties and also as a laboratory in which to experiment upon and demonstrate to the students all practices of orchard and garden management.

### THE AGRICULTURAL CLUB.

The students of the College have an organization of their own, known as the Agricultural Club, which meets every two weeks for the discussion of various agricultural topics. The purpose of the society is to obtain drill in parliamentary practice and in declamation and debate, as well as to discuss the scientific and practical phases of many important agricultural problems. The club publishes a Quarterly, which is not only distributed quite widely among the student body, but is circulated over the state. This publication forms a desirable medium of communication between the students and the farmers, and furnishes useful literary training to the students as well.

### FEES AND EXPENSES.

Attention is called to the remarkably low cost for which a man may take a full collegiate year in the college. By rooming in the dormitories a young man can live at the University almost as cheaply as at home. This should encourage a large number of young men to avail themselves of the special advantages which the four-years course or the one-year course will confer upon them.

#### The expenses are as follows:

Room rent in College dormitories, \$2.50 per month. This includes electric lights, heavy furniture, and care of room. The students provide fuel, mattress, bed furnishings, and toilet articles. Board in Denmark Dining Hall costs \$9.00 a month on the coöperative plan. Room rent and board are paid monthly. Furnished rooms in private families may be secured from \$2.50 to \$5.00 a month for each occupant.

Laundry will cost about \$1.25 a month and books about \$10.00 a year. All students are required to join one of the literary societies, the initiation fee being \$2.00.

Uniform for the military department will cost about \$16.00. This will last two or three years.

In short, the necessary expenses of a student for the college year of nine months need not exceed \$150.00.

Expenses for short term students are in proportion to those for long course students. The cost of attending the Cotton School will vary from \$15.00 to \$25.00, due chiefly to the variation in railroad fare.

### PUBLICATIONS.

The Georgia State College of Agriculture through its extension department publishes circulars of information on pertinent topics from time to time. These circulars are distributed free of cost to farmers residing in the State. A series of educational bulletins is now in course of preparation, and at least four will be distributed during the year. These will summarize in a practical manner the results of investigations, for example, with cotton and corn, and will prove especially valuable for reference to all progressive farmers. It is expected that this series will be developed from year to year until eventually a first-class reading course and farmers' library will be the result. Press bulletins are also sent out each month to all the papers of the State. Thus the College is taking an active part in endeavoring to disseminate the vast fund of useful information which has accumulated as a result of the researches of the agricultural colleges and experiment stations within the last few years.

### PRIZES AND SCHOLARSHIPS.

Through the generosity of the various friends of agricultural education the following scholarships and prizes have been offered to students. The coöperation of the good friends who have made it possible to offer these prizes is heartily appreciated.

#### LIST OF PRIZES

##### Awarded at Commencement, 1911.

**Junior Scholarship**, \$50.00 in gold, given by the Virginia-Carolina Chemical Co., Richmond, Va., to the student showing the greatest proficiency in all agricultural subjects for the College year 1911-12.

**Sophomore Scholarship**, \$40.00 in gold, given by the Virginia-Carolina Chemical Co., to the student showing the greatest proficiency in all agricultural subjects for the College year 1911-12.

**Freshman Scholarship**, \$25.00 in gold, given by the Virginia-Carolina Chemical Co., to the student showing the greatest proficiency in all agricultural subjects for the College year 1911-12.

**One year agricultural course**, \$25.00 in gold, given by Virginia-

Carolina Chemical Co., to the student showing the greatest proficiency in all agricultural subjects for the College year 1911-12.

\$25.00 in gold, given by the Board of Trustees to the student writing the best essay on "The Benefits which the Experiment Stations have conferred on Southern Agriculture."

\$50.00 in gold, given by the Empire State Chemical Co., Athens, Ga., to be divided into three prizes of \$25.00, \$15.00 and \$10.00 respectively for the best essays on "The Use and Application of Commercial Fertilizers."

\$10.00 in gold, given by the DeLaval Separator Co., New York, N. Y., to the student showing the greatest proficiency in the handling of cream separators.

One Silver Cup, given by T. W. Wood & Sons, Richmond, Va., to the student in the one-year course writing the best essay on "Farm Crops."

\$10.00 in gold, given by H. G. Hastings & Co., Atlanta, Ga., to the student writing the best essay on "The Relation of Soil Improvement to Crop Production."

\$10.00 in gold, given by H. G. Hastings & Co., Atlanta, Ga., to the student writing the best essay on "The Influence of Seed Selection on Increased Yields."

Scholarships to the College of Agriculture have been offered by Hon. Asa G. Candler, H. G. Hastings & Co., and Congressman Gordon Lee. Others will be added from time to time. Those who contemplate entering the College and desire information relative to these matters should write to the President.

Two Scholarships, offered by the Southern Railway Company, conditions to be announced.

#### TERMS OF ADMISSION.

**Four-years' Degree Course.** The requirements for admission to the four-years' course are similar to those for all other students entering the University.

A brief summary of these requirements is here given:

A study of English Grammar, Rhetoric and a number of English Classics, as Shakespeare, Milton, Tennyson, 3 units.

A study of Arithmetic, High School Algebra and Plane Geometry, 2  $\frac{1}{2}$  units.

A study of two of the following history groups. Ancient History, English History, American History and Civics, Modern History, 2 units.

And 6  $\frac{1}{2}$  units (of which three may be for agriculture), from the following: Elementary Physics, Physical Geography, Botany, Chemistry, Drawing, Agriculture, Physiology, Zoölogy, History, and a foreign language.

A study of a foreign language, 2 or more units.

This makes a total of fourteen units for full admission to the Freshman class. No student will be admitted with less than 10 of these units, the other 4 units being made up later in the course by outside study or extra studies.

For full outline of entrance studies, the student is referred to the General Catalogue of the University, or to the Principal of his school.

Students not less than eighteen years of age and not candidates for a degree may be admitted to the courses in Forest Engineering upon the recommendation of the professor in charge and the approval of the Entrance Committee.

Students from Accredited Schools will be admitted on a certificate from the principal covering the work done. On work not thus certified students must stand examinations to determine their qualification to carry forward college work. Students who enter the Agricultural College with ten units will be allowed to make up four units in the following manner:

In the Freshman class, Drawing one unit; Agriculture (Soils, Soil Fertility, and Feeds and Feeding in the one-year agricultural course) one unit.

Sophomore class, Physics 1, one unit; Physiography, one unit. If the student finds that he is not able to carry all the Sophomore year, he will be allowed to carry History over to the Junior year.

**Special One-year Course.**—Students 16 years of age and over are admitted to this course without examination, at the discretion of the executive officers of the College. They must, of course, have a good common school education in order to benefit by the instruction provided, and must be diligent and faithful in the prosecution of their studies. These are not candidates for degrees.

**Three-Months' Course.**—The three-months' course is an integral part of the one-year course, and so arranged as to permit farmers and farmers' boys 16 years of age and over to attend the College for a period of three months in the winter season when work is not pressing, and obtain a large amount of practical training based on correct scientific principles at a minimum cost. No entrance examinations are required for this course.

**Farmers' Short Courses, Cotton School, etc.**—These courses are open to any person over 16 years of age in the State, but are designed mainly for farmers of mature years who cannot spend more than ten days away from home during the winter season. The cost of these courses is reduced to a minimum and they are intensely practical in character.

**CONFERENCE FOR FARMERS AND FARMERS' WIVES.**

An annual conference is held during the month of January for the purpose of bringing the farmers and their wives more intimately into touch with the work of the College. The conference lasts for a week, and during that time a great variety of topics are discussed. The Farmers' Conference is a modified school, with its work so adjusted as to give the busy farmer and his wife a pleasant holiday outing, and at the same time enable them to acquire information which will be of service to them throughout the year.

**SELF-HELP.**

It is the purpose of the College to encourage students to work as much of their time as possible for both economic and practical reasons. In this way the cost to the student may be reduced considerably, and his knowledge of how to apply scientific principles in farm practice may be materially broadened. It is both important and necessary that labor with the hands should be recognized as honorable and essential to the welfare of an agricultural people.

Students in the College of Agriculture have the same opportunities of securing help from the Charles McDonald Brown Scholarship Fund as those in other departments of the University at Athens. The interest on this fund is lent to worthy young men on condition that they obligate themselves to return it with four per cent. interest. Applications for scholarships should be made to the Chancellor of the University. A special circular of information concerning the fund and blank forms of application will be supplied on request. This fund makes it possible for many young men of limited means to take advantage of the opportunity which the College offers for securing an education.

**OBJECTS OF THE COLLEGE.**

The purpose and plan of the Agricultural College is, first to train agricultural students in the sciences pertaining to correct farm practice in order that they may receive a thorough and liberal education; second, to so arrange the course of instruction that men of limited means, opportunity, and education may receive the greatest practical benefit by attending courses of varying length provided for in the College; third, to take an active part in the dissemination of agricultural knowledge among the farmers of the State by means of extension teaching, farmers' institutes, and bulletins and publications of a popular and practical nature.

**COURSES OF INSTRUCTION.**

The four-years' course provides for a liberal and thorough training along scientific lines in agronomy, soil fertility, animal

husbandry, dairy husbandry, horticulture, farm mechanics and cotton industry. General training in chemistry, physics, botany, biology, English and mathematics is also provided. Since the field of agricultural education is so broad that it is quite impossible for a student to pursue all the courses offered in four years, certain fundamental studies are prescribed, and the largest liberty of selection commensurate with the best interests of the student permitted. In this way the student is enabled to select a course which is more in keeping with his taste, and at the same time he can obtain sufficient special training to fit him better for the special line of work he desires to pursue upon graduation.

The one-year course is provided for men who have only a limited amount of time and money at their disposal, and who in many instances have not the fundamental training which would enable them to pursue a four-years' course of study advantageously. Men of this class, however, who desire to farm can improve their knowledge and ability to manage farm problems intelligently by pursuing this course at a moderate cost. Naturally, the training provided for in this course is of a more restricted and practical nature, as its character and intention make necessary.

The three-months' course and the ten-day courses and conferences are provided for those actually engaged in farming or interested directly or indirectly in it who desire to obtain the largest amount of practical knowledge which they can apply immediately and with profit, at a minimum of cost. These courses confer great benefits upon all who pursue them, and are to be commended particularly to men varying in age from 25 to 60 years who have not had the benefits of agricultural training in the past, and are therefore at a loss to know where to look for information and very often how to apply it successfully even after they have acquired it.

#### **SPECIAL COURSE IN COTTON INDUSTRY.**

The department of cotton industry is a newly organized department in the State College of Agriculture, and is designed to meet the special needs of a cotton-growing community. Students therefore, who are desirous of specializing in the work will have the opportunity of electing all the courses of instruction offered by the department, provided they select from allied subjects a sufficient amount of work to meet the University requirements. Two special courses of 30 days duration are offered in January and June to all who desire to specialize in cotton grading and related subjects.

## DEGREE.

The degree of Bachelor of Science in Agriculture is conferred on those who complete the four-year course. An outline of the course follows. Those who desire special information relative to any part of the course may obtain it by writing to the college authorities.

## BACHELOR OF SCIENCE IN AGRICULTURE.

Freshman.	Sophomore.
Agronomy 1, 2 . . . . . 2 hrs.	Animal Husb. 2, 3, 4 and 5, . . . . . 4 hrs.
Animal Husb. 1, . . . . . 1 "	Botany 1, . . . . . 3 "
Farm Mch. 1, 2, 3, 4, 5, 3 "	Agr. Chemistry 1 and 2, 4 "
Horticulture 1, 2 and 3, 3 "	History 2 or 4, . . . . . 3 "
English 1, . . . . . 3 "	English 2, . . . . . 3 "
Chemistry 1, . . . . . 3 "	Physics 3 or 5, . . . . . 3 "
Mathematics 1 and 2 . . . 3 "	Veterinary Science 1, 2, 3 "
Military Science . . . . . 1 "	
	19 hrs.
	23 hrs.

## General Agriculture.

Junior.	Senior.
Agr. Chemistry 2 and 3, 4 hrs.	Agr. Chemistry 4, . . . . . 4 hrs.
Agronomy 5, 6, . . . . . 4 "	Animal Husb. 6, 7, 8, . . . . . 3 "
Agronomy 3, 4 } . . . . . 3 "	Veterinary Science 3, 4, . . . . . 3 "
Farm Mch. 6, 7 } . . . . . 3 "	Cotton Industry 4, 5 . . . . . 3 "
Botany 2, . . . . . 4 "	Farm Mch. 8, 9, . . . . . 1 1/2
Bacteriology . . . . . 1 1/2	Forestry . . . . . 1 1/2
Entomology . . . . . 1 1/2	
Elective . . . . . 3 hrs.	Elective . . . . . 6 hrs.
20 hrs.	22 hrs.

## Agronomy.

Agr. Chemistry 2 and 3, 4 hrs.	Agr. Chemistry 4, . . . . . 4 hrs.
Agronomy 5, 6 . . . . . 4 "	Agronomy 7, . . . . . 4 "
Agronomy 3, 4, . . . . . 1 1/2	Cotton Industry 7, . . . . . 4 "
Farm Mch. 6, 7, . . . . . 1 1/2	Farm Mch. 8, 9, . . . . . 1 1/2
Cotton Industry 4, 5, . . . . . 3 hrs.	Forestry 3, . . . . . 1 1/2
Bacteriology . . . . . 1 1/2	
Entomology . . . . . 1 1/2	
Elective . . . . . 4 hrs.	Elective . . . . . 6 hrs.
21 hrs.	21 hrs.

## Animal Husbandry.

Agr. Chemistry 2 and 3, 4 hrs.	Agr. Chemistry 4, . . . . . 4 hrs.
Animal Husb. 6, 7, 8 . . . . . 3 "	Animal Husb. 9, 10 . . . . . 6 "
Vet. Medicine 3, 4, . . . . . 3 "	Veterinary Science 5, 6, . . . . . 3 "
Agronomy 5, 6, . . . . . 4 "	Cotton Industry 6, . . . . . 1 1/2
Farm Mch. 6, 7, . . . . . 1 "	Forestry 3, . . . . . 1 1/2
Bacteriology . . . . . 1 1/2	
Entomology . . . . . 1 1/2	
Elective . . . . . 3 hrs.	Elective . . . . . 6 hrs.
21 hrs.	22 hrs.

**Horticulture.**

Agr. Chemistry 2, 3, or	Agr. Chemistry 4, or
Botany 2, . . . . . 4 hrs.	Botany 6, . . . . . 4 hrs.
Horticulture 4, 5, 6, 7, 8, 9, . . . . . 6 "	Horticulture 10, 11, 12, 6 "
Agronomy 5, 6, . . . . . 4 "	Cotton Industry 5, . . . 1 "
Bacteriology . . . . . 1 1/2	Farm Mch. 6, 7, . . . . . 1 "
Entomology . . . . . 1 1/2	Farm Mch. 8, 9, . . . . . 1 1/2
Elective . . . . . 4 hrs.	Forestry 3, . . . . . 1 1/2
	Elective . . . . . 6 hrs.
	21 hrs.

**Chemistry.**

Agr. Chemistry 2, 3, or	Agr. Chemistry 4, . . . . . 9 hrs.
Agronomy, 3, 4, . . . . . 2 "	Agronomy 5, 6, . . . . . 4 "
Animal Husb. 6, 7, 8, . . 3 "	Cotton Industry 6, . . . . . 1 1/2
Bacteriology . . . . . 1 1/2	Geology . . . . . 1 1/2
Entomology . . . . . 1 1/2	
Elective . . . . . 3 hrs.	Elective . . . . . 6 hrs.
	22 hrs.
	20 hrs.

**Foreign Language.**

Students who do not present two units of a foreign language at entrance may take a foreign language in the Freshman and Sophomore years, and carry over Mathematics and Physics into the Junior and Senior years respectively.

**Laboratory Periods.**

In the College of Agriculture laboratory periods count one hour for two, and are included on that basis in the number of hours required.

**Changes in Courses.**

When changes are made in the courses, students may graduate under the curriculum in force when they enter or under the new curriculum, provided they conform to all of its requirements.

**Electives.**

The courses are arranged so that students may pursue a general course in the Junior and Senior years or specialize in Agronomy, Animal Husbandry, Horticulture, or Chemistry. Students who desire to specialize must elect a group in the Junior year and take the coördinate group in the Senior year. Before registering they must submit a written statement of electives for the year to the head of the department from which their group is chosen. Students who specialize will be required to write a thesis before graduation. The thesis must be on a topic related to the group selected in the Junior year.

**BACHELOR OF SCIENCE. (Forest Engineering).**

The degree of Bachelor of Science in Forest Engineering is given upon the completion of the studies outlined below. These studies have been chosen for their cultural as well as their professional value.

It is probable that the strictly professional studies will in the future be made post-graduate work, leading to the degree of Forest Engineer (F.E.); but at present only the bachelor's degree is given.

**Note.**—Candidates for this degree who do not offer two units in foreign language at entrance, must take a foreign language in the Freshman and Sophomore years in addition to the scheduled work.

<b>Freshman.</b>	hrs.	<b>Sophomore.</b>	hrs.
Shop Work (Mch. 1) . . .	1 $\frac{1}{2}$	Forest Surveying	
Drawing (Mch. 2 and 2a),	2 $\frac{1}{2}$	(Mch. 5a) . . . . .	4
English 2, . . . . .	3	Saw Mill Construction	
History 2 and 3, . . . . .	3	(Mch. 5b) . . . . .	
Mathematics 1, 2, . . . . .	3	English 2, . . . . .	3
Physics 2, . . . . .	4	Mathematics 3, . . . . .	3
Botany 1, . . . . .	4	Botany 2, . . . . .	4
	<hr/>	Chemistry 2, . . . . .	4
	21	Forestry 4, . . . . .	3
			<hr/>
			21
<b>Junior.</b>	hrs.	<b>Senior.</b>	hrs.
Saw Mill Machinery, (Mch. 7a) . . . . .		Soil Physics (Agronomy 5 and 6, . . . . .	4
Timber Physics, (Mch. 7b) . . . . .	4	Concrete (Mch. 8b) . . . . .	
Wood Preservatives, (Mch. 7c) . . . . .		Forest Roads (Mch. 9a) . . . . .	1 $\frac{1}{2}$
Botany 9, . . . . .	4	Forestry 5, . . . . .	2
Zoölogy 2, . . . . .	4	Forestry 6, . . . . .	2
Analysis of Woods, Gums, Resins, and Derivatives, (Agr. Chem. 2a and 3a) 6		Forestry 7, . . . . .	2
Forestry 5, . . . . .	3	Forestry 8, . . . . .	4
Geology . . . . .	1 $\frac{1}{2}$	Forestry 9, . . . . .	2
	<hr/>	Forestry 1, . . . . .	3
	22 $\frac{1}{2}$		<hr/>
			20 $\frac{1}{2}$

**AGRONOMY.**

JOHN R. FAIN, Professor.

J. E. TURLINGTON, Adjunct Professor, Extension.

P. O. VANATTER, Instructor, Extension.

L. E. RAST, Instructor, Extension.

1. **Cereals.** The cereals studied include wheat, corn, oats, barley, rye and rice; sorghum, millet and buckwheat are studied briefly, in so far as the grains are used for food. The study of these cereals includes the origin, history, composition, cultiva-

tion, and methods of improvement. In addition to text-book work, the cereals are grown in nursery rows convenient to the College, so that the student may study the plants first hand. The demonstration field is also used for the same purpose. Two hours. Second and third term. *Freshman.*

2. **Cereal Judging.** This is a laboratory course. The study begins with the seed, and is followed up by the study of the mature plant, and its relation to seed production. A part of this work is in the field, and in the demonstration barn, so that the student is taught not only the various facts in regard to the development of the cereals, but forms the habit of studying these plants in the field. The demonstration field, and cereals grown in nursery rows form excellent facilities for this work. The germination of corn is given especial attention, and the records in the demonstration field are used in this connection, showing the relationship between the germination and growth of the various varieties tested. One laboratory period. Second and third term. *Freshman.*

3. **Farm Management.** Factors entering into the business of farming, and maintaining farm lands are studied in their relation to each other, and to their proper influence on farm practice. Special attention is paid to ways of systematizing the business, and methods of maintaining the crop production of the land. In this connection a detailed study is made of rotation as adapted to Georgia conditions. Laying out the farm, methods of cropping, and records are studied. The cost of production and marketing is given special attention. The laboratory work will consist of conferences in which the results summarized from investigation by the student will be discussed. The student will be required to use "Rural Economics," by Carver, for parallel reading. Other reading assignments will be made from time to time. Two lectures, and one laboratory period. First term. *Junior.*

4. **Grasses and Forage Crops.** The different varieties of grasses and forage crops are studied with reference to their yield, composition, and feeding value. Special attention is paid to those grasses and forage crops that are adapted to southern conditions. As silage is undoubtedly the cheapest form in which forage crops can be preserved in this state, considerable attention will be given to the crops best adapted for silage, the best method of handling the crop, and harvesting it. Three hours. Third term. *Junior.*

5. **Soil Physics.** A study is made of the origin of soils, the different forms of disintegration, and the physical properties of different types, especially in their relation to crop production. Laboratory experiments are required with type soils. Each

student must bring from his home not less than 150 pounds of his home soil. This should be an average sample, taken from several places of the most uniform type prevalent on his home farm and community. In addition to the text, parallel reading will be assigned. Special laboratory work will be given forest students so this course will meet their needs. Two lectures and two laboratory periods. First half year. *Junior*.

6. **Soil Fertility.** Factors in crop production, and methods of controlling these are studied with especial attention to the influence of culture and fertilization. Methods of handling the soil, so as to cause more permanent fertility, rather than a temporary crop production are emphasized. Special attention will be given to the uses of commercial fertilizers, and general soil management. Parallel reading will be assigned. Forest students taking this course will be given laboratory work that will be adapted to their special needs. Two lectures and two laboratory periods. Half year. *Junior*.

7. **Advanced Work.** Students specializing in Agronomy will be allowed the privilege of either continuing soil work, or farm crops. The data accumulated from the demonstration field will be utilized as much as possible in this course. If the soil work is continued, considerable time will be given to pot tests, with two or three of the principle soil types of the state. Four hours per week. *Senior*.

#### COTTON INDUSTRY.

R. J. H. DeLOACH, Professor.

1. **Laboratory Course in Combing and Mounting.** To meet successfully the demands of the cotton markets, growers must know the essentials of a good variety of cotton, and this course is offered to enable students to comb and mount samples of each variety for comparison. Offered to special students. One lecture and two laboratory periods of one hour each, per week. First term. Required of all men who elect cotton industry.

2. **Cotton Grading.** In this course will be given the essentials of cotton grading together with a study of the "standard grades" of American uplands, and Sea Island cotton. Score cards will be used in this course, and students marked largely by their work in actual grading. Offered to special students. Three hours per week. Second term. No text-book required. Note books required.

3. **Cotton Industries.** General course in cotton industries including the above courses, together with a course in the marketing and handling of cotton from the commercial standpoint. A study of varietes and variety tests, and selection for improving cotton. Offered to special students who wish to take a short

course in the department of cotton industry. Three hours per week during entire year. Bulletins and other publications referred to during course.

4. **The Cotton Fiber.** A scientific course in the structure of the cotton fiber, with a classification of fibers and their uses. Consideration will be given to the botanical relations of cotton fiber, the effect of ginning and baling, and final uses of the fiber for manufactured products. General reference will be made to the chemistry of the fiber, and the processes of dyeing. Text: F. H. Bowman's *Structure of the Cotton Fiber*. Three periods, first and second terms. Two lectures and one laboratory period. Juniors who elect cotton industry and general Senior course.

5. **Plant Breeding.** A general course in the principles of plant breeding, with special references to technique in cotton breeding. The course will consist partly of lectures and partly of field experiments. Text: Bailey's *Plant Breeding*, supplemented by DeVries' *Plant Breeding*, and numerous references. Three hours, third term. Juniors. Seniors, general course.

6. **Experiment Station Work.** Designed to give a review of experiment stations, their history and influence, a study of the agricultural societies in the United States, and their relation to the history of experiment stations. Some consideration will be given to the land grant colleges. Students who take this course will be required to do a considerable amount of seminar work. Three hours, first term. Seniors.

7. **Research.** Advanced courses will be offered in the principles of plant breeding, in which opportunity will be given for the study of the cytology of cotton, and the cytological aspects of cotton breeding. Three periods per week. One lecture and two laboratory periods, during entire year. Senior students in cotton industry.

This course counts for graduate work when properly supplemented. See announcement of the Graduate School.

#### **For One-Year Students.**

A general course made up from courses 1 and 2, cotton industry.

**ANIMAL HUSBANDRY.**

MILTON P. JARNAGIN, Professor.

J. W. HART, Professor, Extension.

J. L. BISHOP, Adjunct Professor, Extension.

R. M. MURPHY, Instructor.

C. H. McLEMORE, Tutor.

**1. Types and Breeds of Farm Animals.** This course will include a brief study of all the domesticated farm animals. Liberal use will be made of the lantern, in order to familiarize the student with the best specimens of all the leading breeds. Practical work will be given in the afternoons in the judging and handling of animals on the College farm. Two one-hour recitations and two two-hour laboratory periods. First term. *Freshman.*

**2. Horses, Mules and Beef Cattle.** In this course the origin, history and development of the various breeds of horses and beef cattle will be studied. The adaptation of the various breeds and types to different conditions of soil, climate and environment; a comparison of draft and light horses will be made, and especial emphasis laid on the adaptation of the different types of horses and mules to the various kinds of work. Two one-hour recitations each week. First term. *Sophomore year.*

**3. Dairy Cattle.** In this course the origin and utility of the several breeds of dairy and dual-purpose cattle will be studied. Their adaptation for the production of milk, butter, cheese, or for both milk and beef making will be carefully considered. A comparison of the profits to be derived from the various breeds under different conditions of farming will form an important part of the instruction provided. Two 1-hour recitations each week. Second term. *Sophomore year.*

**4. Sheep and Swine.** This course embraces a study of the history and development of the various breeds of lard and bacon hogs, both of English and American origin. Especial attention will be given in this course to types of hogs suited to grazing. The history of the various breeds of sheep will be taken up, and comparison of the several classes made. Special emphasis will be laid on growing and marketing hothouse lambs and on classifying wool. Two 1-hour recitations. Third term. *Sophomore year.*

**5. Stock Judging.** The students will receive training in the use of the score card for the various classes of live stock, and will study the standards of excellence as established by the several breeders' associations. In addition to this they will be given practical work in comparative judging and show ring placing of the various breeding and market classes of horses, dairy and

beef cattle; bacon and lard hogs; fine wool, medium wool, and long wool sheep. Two 2-hour laboratory periods each week. First, second and third term. Sophomore year.

6. **Swine Husbandry.** A specialized study of the underlying principles involved in the swine production will be taken up in this course. It will include class work covering the origin of the breeds of swine, and their adaptation to different sections of the country and market requirements. The principles of breeding, feeding and general herd management of hogs will be studied. The laboratory work will consist of practical work in judging, feeding, dipping and preparing for sale or the show ring. Practical work will be given in building hog houses, paddocks and other necessary equipment, and in planning and laying out yards and pastures for hogs. Two 1-hour recitations and two 2-hour laboratory periods, First term. Junior year.

7. **Principles of Dairying.** This course includes the theoretical and applied side of dairy and creamery practice. A detailed study will be made of the theory of milk secretion, formation, and production; separation of cream by the shallow and deep setting systems, and by the use of centrifugal machines. The natural fermentations occurring in milk, their benefit and control; the manufacturing of butter; the testing of milk and its products of butter fat will be considered in their proper order.

8. **Poultry Husbandry.** This course includes the breeding, feeding and management of poultry, the operation of incubators and brooders, the planning and construction of poultry houses, and the handling of poultry products. Two 1-hour recitations, and two 2-hour laboratory periods. Third term. Junior.

9. **Principles of Breeding.** The principles of breeding include a consideration of selection, heredity, atavism, normal variation and fecundity. The methods of breeding studied include in-breeding, line-breeding, cross-breeding, and a review of the methods by which the best types of animal have been developed. Three 1-hour recitations. Senior year.

10. **Animal Nutrition.** In this course a study of the gross anatomy and physiology of the digestive system is included. The theoretical and practical side of compounding balanced rations for maintenance, milk and butter production, fattening and growth are fully explained. Three recitations per week. Senior year.

11. **Advanced Work in Animal Nutrition.** This course is provided for advanced students in Animal Husbandry. The results of feeding tests at the various Experiment Stations and Agricultural College in this and other countries will be reviewed. Three 1-hour recitations per week. First term. Senior year.

**12. Feeding Problems.** Qualified students will be allowed to assist in conducting feeding tests, keeping records and summarizing results of experimental feeding conducted by the Department of Animal Husbandry. They will also be expected to make analyses of the various feeding stuffs used and to determine the fertilizing value of the excreta obtained from various classes of farm animals. Three 1-hour recitations per week. Second term.

**13. Economics of Animal Production.** In this course the various types and breeds of live stock will be considered in their relation to the utilization of various farm crops; relation to the productiveness of the soil; and the creation of wealth in general. Three 1-hour recitations per week. Third term.

**14. Research Work in Animal Husbandry.** Qualified students will be allowed to carry on investigations in Animal Husbandry under the approval and directions of the professor in charge of the department. Three hours. Senior.

## HORTICULTURE.

T. H. McHATTON, Professor.

J. W. FIROR, Instructor.

**1. Elements of Horticulture: Fruit Growing.** A general study of location, site frost, planting, varieties, orchard tillage and management. Book: Principles of Fruit Growing, Bailey; to be supplemented by lectures. Three lectures per week. Required of Freshmen in Fall Term.

**2. Pruning and Propagation.** A course in grafting, budding and other methods of propagation; also a study of the principles of pruning with its practice and effect. A few periods will be devoted to a study of varieties both for the orchard and truck garden. Book: The Nursery Book, Bailey, to be supplemented by lectures. Laboratory course of three periods per week. Required of Freshmen in Winter Term.

**3. Elements of Horticulture: Truck Gardening.** A general study of the main truck crops as to planting, tillage and handling, with the addition of a study of hot-beds and their management. Book: The principles of Truck Gardening, Bailey; to be supplemented by lectures. Three lectures per week. Required of Freshmen in Spring term.

**4. Small Fruits.** A study of the various small fruits of interest to the horticulturist. Three lectures a week for six weeks. Book, Bush-Fruits, by Card. **Fruit Harvesting, Storing and Marketing.** Three lectures a week for six weeks. Book, Fruit Harvesting, Storing, Marketing, by Waugh. Required of Juniors electing Horticulture in the Fall term.

5. **Pomology and Garden Seeds.** A course in the testing of seeds and a study of the several species of fruit with their pomological classification. Book: *Systematic Pomology*, Waugh, to be supplemented by lectures. A laboratory course of three periods per week, to be carried with course 4. Required of Juniors electing Horticulture in the Fall term.

6. **Greenhouse Management and Floriculture.** A study of the various flower crops, forcing crops and management of a greenhouse. Reference books, *Greenhouse Management*, Taft; *The Forcing Book*, Bailey, and *Practical Floriculture*, Peter Henderson. Three lectures per week. Required of Juniors electing Horticulture in the Winter term.

7. **Greenhouse Construction.** A study of the different types of greenhouses and the heating, construction, etc., of the same. In connection with this course trips to florists and nurseries will be taken to study the plants and greenhouses. A ground plan, end elevation, bill of material and description of heating plant used in a green house will be required of the student at the end of this course. Reference book, *Greenhouse Construction*, Taft. A laboratory course of three periods per week. Required of Juniors electing Horticulture in the Winter term.

8. **Orchard and Garden Diseases and Pests.** A study of the insects and diseases of economic importance, especial attention being given to their life histories and the injuries caused by them. Reference books: *Insects Injurious to Fruits*, Saunders; *Insects Injurious to Vegetables*, Chittenden; *Diseases of Plants*, Tubeuf & Smith; *Massee on Plant Diseases*. Three lectures per week. Required of Juniors electing Horticulture in Spring term.

9. **Spraying.** A laboratory course to be given with Horticulture 8. Practice given in the making and application of the different spray mixtures, with a study of their history and chemistry. Reference book, *The Spraying of Plants*, Lodeman. Three laboratory periods per week. Required of Juniors electing Horticulture in the Spring term.

10. **Landscape Gardening.** A study of the various schools of Landscape Architecture and also of the plants used in producing the various effects. A problem in Landscape Gardening will be given to each student, and a drawing showing his solution required. Book: *Landscape Gardening as Applied to Home Decoration*, Maynard. Three lectures and three laboratory periods per week. Required of Seniors electing Horticulture in the Fall term.

11. **Literature of Horticulture.** A course in the general history of Horticulture, with a study of the different reference books and papers. Three lectures per week. Required of Seniors electing Horticulture in the Winter term.

12. **Thesis.** The student is here asked to select some problem in one of the divisions of Horticulture, and will be allowed to find the solution in his own way. Time is given for consulting with the instructor so that his help may be obtained from time to time. At the end of the course a thesis stating the problem, the methods followed, and the results obtained will be required of the student. Three lecture hours and three laboratory periods per week. Required of Seniors electing Horticulture in the Spring term.

13. **Graduate Course.** See announcement of the Graduate School.

### FARM MECHANICS.

LEROY C. HART, Professor.

W. R. WILSON, Student Instructor.

1. **Shop Work.—Wood Work.** This course is designed for the instruction of the student in the use, care and sharpening of all wood working tools. A carefully planned series of exercises will be made. These exercises bring into use all tools that will be helpful to the student in after life. An advanced course in wood work planned for students having had the preliminary work will be given. This course will consist of the design and building of furniture and other pieces of wood work for the home. Required of Freshmen.

**Forge Work.** This work is designed to familiarize the student with the building and care of coal fires, the manufacture of iron and steel, and to familiarize him with the working and handling of iron and steel. Tool-making and tempering will be given. Required of Freshmen.

2. **Drawing.** Sufficient time will be devoted to free-hand drawing to enable the student to execute readily the necessary drawings in the various laboratory courses. Instrumental drawing will then be taken up so that the student may become familiar with the use of the instruments and be able to execute rapidly and neatly any drawing of this kind that will be required. Freshman year.

2. (a). **Forest Drawing.** Special drill in drawing topographical maps, using all topographic signs used in the United States Topographic Surveys. This course for Forestry students, but may be elected by advanced students.

3. **Farm Machinery.** A study will be made of the construction and use of the various farm machines, such as preparation, planting, cultivating, harvesting, storing, home and miscellaneous

machinery. Each group will be taken up separately and studied. Required of Freshmen.

3. (a). **Dynamite.** As dynamite has come to be of considerable importance in agriculture a short review of its manufacture and use will be given in connection with Farm Mechanics 3.

4. **Farm Motors.** Considerable time will be given to study and operation of the gasoline engine, the steam engine and the electric motor. This course is taken up in connection with Farm Mechanics 3. Required of Freshmen.

5. **Farm Surveying.** This work will consist of the study and the use of farm levels, compass and transit in terracing, leveling and the survey of farm lands and also their use in road building. Each student will be required to make a thorough map of a plot of ground to be selected and compute the area of same. The use of these instruments in tile drainage will be taken up and a survey and map made of a plot of ground needing drainage. Required of Freshmen.

5. (a). **Forest Surveying.** An advanced course in the use of the compass, level, plane table and transit with special attention given to the different uses of these instruments in topographic and reconnaissance work. The work will consist of a hasty survey of a plot of ground, then a more careful survey will be made as a check upon the first method to illustrate the difference in accuracy. This will enable the student to determine the method to be used on all future work. Work required in the Sophomore years for all Forest students, but may be elected by other students who have had Farm Mechanics 5, or its equivalent.

5. (b). **Saw Mill Construction.** In view of the fact of the scarcity of proper heavy timber for construction, a course will be given dealing with the built-up members for heavy framing. This course will deal with the framing of saw mill buildings and other structures using heavy timbers. Forest students. Sophomore year.

6. **Fencing.** This will include a study of the strength and adaptability of various material for fence construction. The principles of construction of gates and of bracing at the corners and at sufficient points according to the condition of the ground will be emphasized particularly. Junior year.

7. **Farm Building.** This course consists of the study and design of farm buildings. Starting with the simplest and gradually working up to the most complicated by progressive steps. Plans are drawn and from these the bill of material and an estimate of the cost of the completed structure is made. Special attention will be given to farm convenience and sanitation. Considerable time will be spent in studying problems of lighting,

heating, water supply and sewerage for the farm home. Farm Mechanics 2, or its equivalent, are prerequisite to this course. Junior year. Second term.

7. (a). **Saw Mill Machinery.** This course consists of a study of saw mill machinery, such as saw mills, both portable and stationary, with all necessary machinery for the complete handling of the lumber from the log to the dry kiln; donkey engines, skidders, logging locomotives and logging cars. Required of Forest students, Junior year.

7. (b). **Wood Physics.** A study of the strength of wood under different conditions and shapes, also the physical effect of moisture heat and preservatives upon its strength will be taken up. Required of forest students, Junior year.

7. (c). **Wood Preservatives.** The structural physical properties of wood in relation to durability; the primal cause of decay; factors governing the lasting powers of different species; the preservation of woods by the application of paints and oils to the surface, the impregnation with creosote and other wood preservatives, the commercial method of impregnation, description of preserving plants and the fire proofing of timber. Required of Forest students, Junior year.

8. **Concrete Construction.** A study will be made of the principles of concrete construction, also the material, forms, mixing and placing and tamping will be taken up in order and thoroughly studied. Their application to farm conditions and the various uses to which concrete has been put in late years will be pointed out. Special attention will be given to its use for residences and barns. The construction of fence posts from concrete will be taken up. Optional for Seniors. Farm Mechanics 2, 6 and 7 prerequisite, or their equivalent.

8. (a). **Concrete Construction.** An advanced course in the testing of cements and concretes under different conditions and shapes will be given. Optional for Seniors.

8. (b). **Concrete Construction.** A course designed to show the applications of concrete in forest engineering. The method of using natural aggregates will be studied. Forest students, Senior year.

9. **Road Building.** A study will be made of the various types of machinery used in road construction. Practice work will be given in locating roads on the most desirable grades with special attention to drainage. Considerable time will be devoted to road material, and tests of the various kinds. Optional for Seniors. Farm Mechanics 5, prerequisite to this course.

9. (a). **Forest Roads.** This consists of a special study of earth

roads and tramways in connection with their use in lumbering.  
Required of Forest students, Senior year.

**Note.**—No. 8 and No. 9 will constitute half a year's work.

### VETERINARY SCIENCE.

W. M. BURSON, Professor.

H. H. ROTHE, Instructor.

1. Consists of lectures and demonstrations covering the Anatomy and Physiology of the animals of the farm. Special attention is given to the anatomy of the horse and cow with variations occurring in other farm animals. Histology is taught by lectures and by examination of animal tissues under the microscope. Materia Medica is taught by lectures, examination of specimens of crude and prepared drugs and medicines. First, second and third terms. Two hours per week. Sophomore year.
2. Consists of laboratory work in the above subjects. First, second and third terms. One laboratory period per week. Sophomore year.
3. Consists of lectures on Pathology, Bacteriology, Parasitology, Theory and Practice, and Lameness. First, second and third terms. Two hours per week. Junior year.
4. Consists of laboratory courses in Pathology and Bacteriology. First and second terms. One laboratory period per week. Junior year.
5. Consists of lectures in Theory and Practice, Therapeutics, Surgery, Dentistry, Obstetrics and Contagious Diseases. First, second and third terms. Senior year. Two hours per week.
6. Consists of free clinics held during the school year at the Veterinary Hospital. Third term. Junior year. First, second and third terms. Senior year.

### AGRICULTURAL CHEMISTRY.

W. A. WORSHAM, JR., Professor.

L. M. CARTER, Adjunct Professor, Extension.

D. B. LONG, Adjunct Professor, Extension.

R. S. HOLLINGSHEAD, Instructor, Extension.

1. **Organic Chemistry.** This course consists of the study of the classification and relation of the carbon compounds, and the preparation of the simpler and more important ones.

Stress will be laid on those compounds relating most directly to agriculture, such as the organic compounds in the soil, feeds, foods, and organic food adulterants.

Students taking this course must have had elementary Chemistry 1, or Inorganic Chemistry 2, including work in laboratory.

Haskins & Macleod Organic Chemistry will be used as a basis of this work. Three hours of lectures and recitations and one laboratory period during first and second terms of Sophomore year.

**2. Qualitative Analysis.** In this course a study will be made of the characteristic properties and the reactions of the common metals and the acid radicals, and the general principles underlying qualitative analysis. By systematic work with known substances and then "unknowns" the student will be able to familiarize himself with the processes employed in qualitative analysis. This course is designed to enable the student to know the composition of all ordinary substances, particularly those that are of most importance in agriculture. Text: Noyes' Qualitative Chemical Analysis; special problems outlined by the instructor.

Two hours of lectures and recitations, and two laboratory periods during third term of Sophomore year, and two hours of lectures and recitations and four laboratory periods during first term of Junior year.

**2a. Qualitative Analysis.** Course adapted to needs of students in Forestry.

**3. Quantitative Analysis.** The object of this course is to prepare the student for special work in agricultural chemistry as well as to teach the method of quantitative analysis.

The methods of both gravimetric and volumetric analysis will be treated in lectures and the practice carried out in the laboratory. Substances of known percentage composition will first be analyzed and then substances of unknown composition, including the simpler agricultural products. Texts: Elementary Quantitative Agricultural Chemical Analysis, Lincoln & Walton. Reference books: Quantitative Analysis, by Treadwell, Olsen, and Fresenius.

**3a. Quantitative Analysis.** Course adapted to needs of students in Forestry. Gums and resins will be given special attention.

**4. Advanced Quantitative Analysis.** The basis of the work in this course will be the study of the methods employed in soil investigations, the analysis of soils, fertilizers, feeds, waters, etc. Some latitude will be allowed the student as to the substances to be analyzed. Students taking this course must have had Agricultural Chemistry 3. No text-books required. Work for laboratory will be outlined and standard references given.

Two hours of lectures and recitations and four laboratory periods for three terms during Senior year.

**Fees.**—No laboratory fees are charged for any of the courses offered in this department.

A deposit of \$5.00 will be required for each laboratory course to cover breakage of apparatus. If any of this amount is left it will be returned to the student at the end of the year.

## FORESTRY.

ALFRED AKERMAN, Professor.  
J. T. KOLLOCK, Student Assistant.

### Work of the School of Forestry.

The school was created in 1905; and work was begun with the academic year 1906-1907. Several lines of work have been undertaken: (1) Instruction in Forest Economics, to bring out the importance of our forests to the state and to the nation; (2) Elementary instruction in forestry, to familiarize the agricultural students with the management of farm woodlots and the execution of forest working plans; (3) Instruction in professional forestry, for those who intend to go into the lumber business, or to follow forest engineering as a profession; (4) Popular education in forestry throughout the state; (5) Coöperation with the owners of woodlands.

The work along the first line is embodied in course 1; along the second line courses 2 and 3; along the third line in courses 4, 5, 6, 7, 8, and 9; along the fourth line in publications and in lectures before schools, farmers' institutes, lumbermens' associations, and other interested organizations; along the fifth line in the coöperative agreement which the College of Agriculture makes with woodland owners.

### Description of Courses.

1. **Forest Policy.**—A study of the public's interest in forests. The development of the forest policies of Germany, France, Switzerland, Great Britain, the United States, and the several states. Instruction by lecture. Three hours. *Required of Seniors in Forestry.*

2. **Farm Forestry.** A study of forestry as applied to farm woodlands. The course is designed to give a working knowledge of how to secure a stand of timber, how to thin, protect, and harvest the forest crop. Text: Akerman's "Farm Forestry." Two 1-hour recitations and one 2-hour practice period, third term. *Required of those taking the one-year course in Agriculture.*

3. **Farm Forestry, Longer Course.** Similar to course 2, but adapted to more advanced students. Two 1-hour lectures and one 2-hour practice period, second half year. *Optional with Seniors in Agriculture.*

4. **Dendrology.** This course comprises a botanic and economic study of forest trees. Identification of species in the woods in summer and winter habit is given special attention. Instruction is given by lectures, laboratory work, and excursions. Reference work: Sargent's "Manual of the trees of North America." Three hours, Sophomore year. *Required of Sophomores in Forestry.*

5. **Silviculture.** A study of forest stands from their founding to maturity, including artificial and natural reproduction, tending the stand, and silvical notes on the important species. Instruction by lecture, excursion, and practice. Three hours, Junior year; six hours first term of Senior year. *Required of Juniors and Seniors in Forestry.*

6. **Forest Protection.** A study of the injury to the forest from trespass, fire, storms, insects, fungi, and grazing, and of protective measures. Instruction by lecture, excursion, and practice. Six hours, third term. *Required of Seniors in Forestry.*

7. **Forest Mensuration.** Computation of contents of logs, standing trees and forest stands; studies in diameter, height, and volume increment; the use of instruments of mensuration; ocular estimation of timber; log scales and their use. Instruction by text, supplemented by lectures and practice in the woods. Text: Graves' "Forest Mensuration," and Cary's "Manual." Six hours first term, Senior year. *Required of Seniors in Forestry.*

8. **Forest Management.** Forest valuation, financial returns from forest property; principles of forest working plans; construction of a forest working plan for a given tract. Instruction by lecture, with practice in the woods. Senior year, six hours second and third terms. *Required of Seniors in Forestry.*

9. **Lumbering and Utilization.** A study of the lumber industry, and the uses of wood; the methods employed by lumbermen, and their improvement; felling, transportatation, and manufacture. An essay on some branch of the lumber industry is required. Instruction by lectures, supplemented by reading and investigation. Six hours, second term, Senior year. *Required of Seniors in Forestry.*

### SUMMER TERMS.

Candidates for degree are required to live for two months each summer between the Sophomore and Junior, and Junior and Senior years at a lumber camp, sawmill, or turpentine distillery, to keep a diary of each day's work, to make a herbarium of the forest flora of the locality, and prepare a thesis on the operations being carried on. It is preferred that students secure some employment connected with the operations.

### CO-OPERATION WITH LUMBERMEN.

The College furnishes an expert to examine woodlands and prepare suggestions as to their management. Those who desire advice in the management of woodlands or in planting waste lands should make application on blanks which are sent on request.

### MATHEMATICS.

C. M. SNELLING, Professor.

R. P. STEPHENS, Associate Professor.

R. S. POND, Instructor.

(Of the following, Courses 1, 2, 3, and 4 will be required of all students for graduation. However, those who entered in 1911 must take Course 3a, instead of Courses 3 and 4).

1. **Trigonometry.** A course in Plane and Spherical Trigonometry. Three hours per week for the first two terms. Texts: Murray's. *Professors Snelling and Stephens and Dr. Pond.*

2. **Graphical Algebra.** This will include a study of coördinates, the plotting of curves, and the derivation of the equations of the straight line and the circle. Three hours per week for the third term. *Professors Snelling and Stephens and Dr. Pond.*

### CIVIL ENGINEERING.

C. M. STRAHAN, Professor.

E. L. GRIGGS, Associate Professor.

J. C. KOCH, Adjunct Professor.

(Student Assistants: C. D. Flanigen, and R. T. Goodwyn).

#### Civil Engineering Courses.

A-1. **Elementary Surveying.** A course covering the use, care, and adjustment of surveying instruments, methods of surveying by chain alone, by compass, and by transit; the methods of platting and computing areas, and volumes; the variation of the magnetic needle; problems in parting off and dividing lands; the use of the Y level and precise leveling; plane table and stadia surveying, and the use of the solar transit. Three hours per week. Text: Breed and Hosmer's Surveying. *Professor Griggs.*

B-1. **Materials of Construction.** A course of lectures and laboratory work covering the occurrence, preparation, and manufacture of the important structural materials, to-wit: lumber, its seasoning, inspection, and preservative treatment; stone, natural and artificial, including brick, terra cotta, cements, concrete blocks, etc.; the metals, including cast iron, wrought iron, steel, copper, tin, lead, zinc, aluminum, and alloys as used by engineers; uniting materials, covering limes, mortars, cements, bituminous binders, joinery, rivetting, etc. First and second terms. The third term is given to Foundations and Masonry structures, the course being based on Baker's Masonry Construction. Three hours per week. *Professor Strahan.*

B-2. **Railroad Engineering.** A course covering reconnaissance, preliminary and location surveys, curves, spirals, switches, etc.,

**cross-sectioning, computations and estimates, railroad economics and the various other problems involved in the complete engineering of railways.** Three hours per week. Text: Webb's Railroad Construction. Lectures. *Professor Strahan.*

**B-3. Highway Engineering.** A course of lectures, laboratory and field problems covering the surveys, location, drainage, grading and surfacing of public highways and city streets. The preparation of maps, profiles, and estimates. Paving methods and specifications. Road finances, equipment, and labor. Three hours per week. *Professor Koch.*

### PHYSICS.

L. L. HENDREN, Professor

E. T. MILLER, Instructor.

The following courses are offered for Agricultural students. For other courses see the A. & M. College announcements.

**1. Elementary Physics.** Text-book, Millikan and Gale's First Course in Physics. Three hours per week recitation and two hours per week laboratory work. Required of Junior B. S. Ag. students who have not received credit for one unit of entrance work in Physics.

**2. General Physics.** A course in Mechanics, Molecular Physics, Electricity and Magnetism. Prerequisite one year of elementary physics. Text-book, Kimball's College Physics, with special laboratory notes. Three hours per week recitation and two hours per week laboratory work. Required of B. S. Ag. students who have received credit for one unit entrance work in Physics.

**3. General Physics.** The same as course 2 with two additional hours of laboratory work. Required of Freshmen in the B. S. Engineering Course of Forestry.

### CHEMISTRY.

H. C. WHITE, Professor.

H. V. BLACK, Associate Professor.

C. A. WELLS, Instructor.

The following courses are offered:

**1. Elementary Chemistry.** Three hours per week of lectures and recitations and two laboratory periods, for three terms. Text: Kahlenberg, Outlines of Chemistry.

**2. Inorganic Chemistry; College Course.** Three hours per week of lectures and recitations and two laboratory periods, for three terms. Text: Kahlenberg, Outlines of Chemistry.

**BIOLOGY.**

J. P. CAMPBELL, Professor.

P. L. HUDSON, Student Assistant.

In this School the following courses are offered for the ensuing year:

3. **General Invertebrate Zoölogy.** This course is based upon the laboratory study of a selected series of types representing most of the main divisions of the kingdom. Arthropods are studied in the first term, Mollusca, Annulata, and the smaller phyla in the second, and Echinoderms, Coelentera and Protozoa in the third. The morphological point of view predominates, but attention is also given to physiology, ecology, embryology, and classification, and in addition, each group is made to illustrate some important theoretical question to which it is especially adapted. Three hours weekly with laboratory work additional.

4. **General Vertebrate Zoölogy.** This is the continuation of course 3, and the same general methods prevail. The protochordata are first taken up with a discussion of the theoretical questions that they involve, after which the various vertebrate classes are considered, attention being given to structure, ecology, classification, economic problems, etc. One hour weekly, with laboratory work additional.

5. **Morphology of Vertebrates.** In this course attention is given to the Embryology and Comparative Anatomy of Vertebrates as well as to the leading theoretical questions which the study of this group presents. The laboratory work accompanying consists of additional Vertebrate dissections and work in Histology and Embryology. Two hours weekly.

6. **Animal Physiology.** This course is planned for students who have a good knowledge of elementary Physiology, equal in scope to that given by course 1, and who have in addition a good working knowledge of Physics and Organic Chemistry. Special topics are taken up for fairly exhaustive treatment, and the effort is made to bring the student into touch with the latest developments of the subject. The laboratory work consists in part of Physiological Chemistry, and in part of Experimental Physiology. Three hours weekly with laboratory work additional during the second and third terms.

**Note.**—Seniors who have completed courses 1 and 3 may take either 4 and 5, or 4 and 6.

**Note.**—Seniors who expect later to take up the study of medicine may, if they prefer, take courses 4 and 6. (See State College). This can only be allowed to students who have a good knowledge of elementary Physiology.

**BOTANY.****J. M. READE, Professor.**

The following courses are offered under the conditions prescribed in the curricula of Science, Agriculture, and Forestry.

A laboratory fee of \$2.50 is charged for each course.

1. **Elementary Botany.** An introductory course dealing with the main facts of the biology and structure of plants. Prerequisite to all other work in the subject. Class and laboratory periods both twice weekly.

2. **Morphology and Development of Higher Plants.** A general account of the mosses, ferns and seed plants. Course 1 is prerequisite. Class and laboratory periods both twice weekly.

3. **Histological Methods.** A laboratory course in the methods of preparing and studying microscopic plant structures. A half course. Chamberlain, Methods in Plant Histology. Course 1 is prerequisite.

4. **Mycological Methods.** A laboratory course in the methods of cultivating and studying bacteria and fungi. A half course. Course 1 is prerequisite.

5. **Morphology and Biology of Bacteria.** A general account of the group. Course 1 is prerequisite.

6. **Morphology and Taxonomy of the Fungi.** A general account of the structure, development and classification of the Eumycetes. Course 1 is prerequisite. Class and laboratory periods both twice weekly.

7. **Morphology and Biology of the Algae.** A general account of the group. Course 1 is prerequisite.

8. **Fungi and Plant Diseases.** A laboratory and field study of Bacteria, Myxomycetes and Eumycetes in relation to plant diseases. Courses 1, 4 and 6 are prerequisite.

9. **Physiology of Vascular Plants.** A field and laboratory study of the physiological processes of higher plants and their accomplishment under environmental conditions. Courses 1 and 2 are prerequisite. Class and laboratory periods both twice weekly.

10. **Ecology.** A geographical and dynamical study of vegetation. Courses 1, 2 and 9 are prerequisite.

The remaining courses are announced and may be given if conditions warrant it.

11. **Physiology of Reproduction.** A lecture course dealing with the facts and theories of variation and inheritance.

**RHETORIC AND ENGLISH LITERATURE.**

R. E. PARK, JR., Professor.

S. V. SANFORD, Junior Professor.

S. M. SALYER, Instructor.

H. A. NIX, Tutor.

1. **Composition and Rhetoric.** Detailed study and practice in construction and kind of composition. This course will involve continual practice in writing and some work in rhetorical analysis. Lectures, themes, daily exercises. *Required of Freshmen.* Three hours a week. *Professor Sanford and Mr. Salyer.*

2. **English and American Literature.** The principles of literary criticism and the practical applications of these principles to masterpieces of authors studied with reference to (1) elements of literature, (2) species of literature, (3) historical development. The object of this course will be to give to the student a general view of the history and development of literature, with more detailed knowledge of certain periods. Throughout the course much attention will be devoted to the writing of essays as a means of training the student to appreciate and to express his appreciation of the literature studied. *Required of Sophomores.* Three hours a week. *Professor Park and Mr. Salyer.*

**HISTORY AND POLITICAL SCIENCE.**

J. H. T. McPHERSON, Professor.

W. O. PAYNE, Associate Professor.

R. P. BROOKS, Adjunct Professor.

1. **Greek and Roman History,** with a brief review of the early Oriental nations, and continued through the period of mediaeval history ending with the Treaty of Verdun. *Optional for Freshmen* who do not offer Ancient History for entrance. Three hours per week throughout the year. Text: Myers's "Ancient History." *Associate Professor Payne.*

2. **European History.** In this course one or more characteristic periods of European History are studied intensively. The periods considered and texts used are changed from year to year. During the present session the Sixteenth and Seventeenth Centuries were studied, with Johnson's "Europe in the Sixteenth Century," and Wakeman's "The Ascendancy of France," as texts. *Required of Freshmen*, except (1) those admitted to History 1, and (2) Freshmen in the B.S. in Agriculture Course. Three hours weekly throughout the year. Four sections. *Professor McPherson, Associate Professor Payne, and Adjunct Professor Brooks.*

3. **History of Georgia.** A short course embracing a sketch of the political history of the State, from the beginning up to the

present time, and a study of the Civil Government of Georgia. One hour per week throughout the year. Text: McPherson's "The History and Civil Government of Georgia." *Required of Freshmen. Adjunct Professor Brooks.*

4. **Political and Constitutional History of England.** Especial attention is paid to the development of Parliament, the Cabinet, and the phases of local government—township, parish, manor, hundred, and county—with the object of laying a thorough foundation for the subsequent study of American institutions. The progress of contemporary European events is kept constantly in view. Three hours per week throughout the year. Text: Gardiner's "History of England." Four sections. *Associate Professor Payne, and Adjunct Professor Brooks.*

14. **Economics.** A course at once introductory and advanced, designed to give mature students a grasp of the principles and a survey of the field of Economics. Text: Seligman's "Principles of Economics." Three hours per week, first and second terms. *Professor McPherson.*

15. **Economic History of the United States.** The principles acquired in History 14 are here applied in a systematic review of the economic and financial experience of the country, and in a careful study of the leading problems of the day. Taxation, Banking, Tariff, Railway, Municipal, Trust, and Labor problems are given detailed consideration. Three hours per week, third term. *Professor McPherson.*

#### German.

1. **German 1** is a course for beginners who are conditioned in German and wish to substitute both German and French for Greek in the A.B. degree. For 1911-12 this course comprised an elementary grammar and reader, with daily written and oral exercises in parsing and in translation from English into German. Three hours per week. *Professor Morris and Adjunct Professor DuBose.*

2. **German 2** continues the work of German 1, and completes the requirement for entrance given on page 23. The course consists of translation of simple texts, and exercises in both speaking and writing German. Three hours per week. *Professor Morris and Adjunct Professor DuBose.*

#### ROMANCE LANGUAGES.

J. LUSTRAT, Professor.

W. T. TURK, Tutor.

#### French.

1. **French 1** is a course for beginners who are conditioned in French and wish to substitute both French and German for Greek.

The course consists of careful drill in pronunciation, the rudiments of grammar, the study of regular and irregular verbs, the inflection and use of personal pronouns, the rudiments of syntax, dictation, easy exercises of translation from English into French, conversation, and the reading of about 275 duodecimo pages of easy prose. Three hours per week.

2. **French 2** is the continuation of course 1, for students who are conditioned in French and wish to substitute both French and German for Greek. It will comprise the reading of about 400 pages of easy modern prose, constant practice in translating into French easy English prose, dictation, short drill in grammar and syntax, full study of all irregular verbs, and conversation. Three hours per week.

#### PHILOSOPHY AND EDUCATION.

T. J. WOOFTER, Professor.

— — — — —, Associate Professor.

HOWELL B. PEACOCK, Tutor.

##### Philosophy.

1. **General Psychology.** An introductory course giving a survey of the field of Psychology with special emphasis on its functional and genetic phases. First half year. *Mr. Peacock and Professor — — —*.

##### Education.

###### 1. History and Principles of Education.

(a) **History of Education.** The educational doctrines and practices of the great peoples of the world with special study of the modern period, (1) the development of modern educational ideals and systems, and (2) the development of secondary schools.

(b) **Educational Psychology.** An introduction to the science of education.

###### 2. Educational Sociology.

#### GEOLOGY.

Vacant.\*

1. **General Geology.** Three hours per week, second half-year. The course of instruction is at first a general one, embracing the study of the distinguishing properties of minerals and common rocks, the decay of rocks and the formation of soils. Following this is a more extended course of Structural, Dynamical and Historical Geography.

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\*Temporarily in charge of the professor of Chemistry.

**MILITARY SCIENCE AND TACTICS.**

J. A. ATKINS,

2nd Lieut., 16th U. S. Infantry, Commandant.

In accordance with the provisions of the Land Grant Act, military exercises are regularly held in this College, upon which the attendance is compulsory by members of the Freshman, Sophomore and Junior classes, and the students in the One-year Course in Agriculture, except when excused by the surgeon of the Corps of Cadets.

The uniform consists of a coat of standard Charlottesville gray cloth; winter trousers of same material, with stripe one inch wide; and blue cap. The uniform costs about \$15.55. For spring use white duck trousers, jeans trousers and blue shirt, leggins and hat are required, costing about \$4.50.

Practical instruction is given three hours each week, covering the following subjects: Infantry Drill Regulations; Field Service Regulations; Manual of Guard Duty; Firing Regulations for Small Arms; Artillery Drill Regulations, partial.

Theoretical instruction, two hours each week, for commissioned and non-commissioned officers, is given in the portions of the above subjects covered by the practical instruction, and is supplemented by lectures. *One hour each week of theoretical instruction is required of Freshmen.*

**ONE-YEAR COURSE IN AGRICULTURE.**

This course commences at the opening of the fall session and continues throughout the collegiate year. The purpose of this course is to provide suitable instruction for those who can only remain in college for one year. An effort has been made therefore to condense the work as much as possible, provide a correct scientific foundation, and yet make the instruction of a very practical nature. An outline of the one-year course follows. The schedule indicates the number of hours required in each subject and the amount of time devoted to class room and laboratory work. Notice that the laboratory instruction has been emphasized as this is considered the best way of demonstrating the value of applied science to the solution of the problems of the farmer. Students entering this course who are capable of carrying the Freshman Mathematics or English may be permitted to do so upon the approval of the President of the College.

## ONE-YEAR COURSE.

## First Term.

	Hours.	Lab. Periods.
English .....	3	..
Arithmetic .....	3	..
Cereals .....	2	..
Cereal Judging .....	..	1
Soils .....	3	..
Iron and Wood Work .....	..	3
Horticulture .....	3	1
Breeds and Breeding .....	3	2
Botany .....	3	..
Veterinary Medicine .....	3	..
	—	—
	23	7

## Second Term.

English .....	3	..
Arithmetic .....	3	..
Cotton and Cotton By-Products .....	3	1
Cotton Grading (Cotton School) .....	..	..
Soil Fertility .....	3	..
Farm Machinery .....	..	1
Horticulture .....	2	1
Dairying .....	1	2
Feeds and Feeding .....	3	1
Farm Management .....	2	..
Veterinary Medicine .....	2	1
	—	—
	22	7

## Third Term.

English .....	3	..
Farm Accounts .....	3	..
Grass and Forage crops .....	3	1
Chemistry .....	3	..
Plumbing and Pipe Fitting .....	3	1
Horticulture .....	3	1
Farm Buildings .....	..	1
Practice Work Animal Husbandry .....	..	1
Surveying .....	3	1
Forestry .....	2	1
Veterinary Medicine .....	2	..
	—	—
	22	7

### AGRONOMY.

**Cereals and Cereal Judging.** The history, use, and cultivation of the different cereals will be studied. Especial attention will be given to seed selection as influencing the yield of farm crops. A study of the various cereals, especially corn, will be made by use of the score card. First term. Three 1-hour recitations and one laboratory period.

**Farm Management.** An examination of the various business methods employed on different classes of farms is first undertaken. Special attention is given to systematizing the work and determining the effect of various rotations on the maintenance of fertility. A stereopticon is used to show how various kinds of farms should be arranged so as to conduct the business with the greatest economy.

**Grass and Forage Crops.** A study is made of the various grasses adapted to this state that can be utilized to the best advantage for pasture and hay. The uses of the forage crops, especially the legumes, are given considerable attention. Methods of growing and preserving silage are considered at length; as this is undoubtedly the best form for preserving forage crops in the South.

**Soils.** A study of the physical properties of soil is made, and the effect of good and poor mechanical conditions on crop production is demonstrated. Methods of improving the physical conditions are studied. Special attention is given to the water-holding capacity of the soil, and the best methods of conserving soil moisture. First half-year. Three 1-hour recitations.

**Soil Fertility.** The different fertilizing ingredients and their function in plant growth will be discussed. Methods of mixing fertilizers and determining the formulas best adapted to different soils will be studied. The effect of rotation of crops on soil fertility and the draft of the different crops on the soils will also receive attention. Second half-year. Three 1-hour recitations.

### COTTON INDUSTRY.

Emphasis is laid on the importance of seed selection. A study of types of plants with special reference to their yielding capacity will be made, and the conditions affecting length, strength, uniformity, quality and quantity of fiber. Some attention will be given to combing and grading cotton, and all varieties will be studied in the seed in the laboratory. There will also be a complete set of grades of long staple and upland lint cotton in the laboratory for inspection and comparison, and students will be required to grade some cotton by the samples, after the basis of grading has been pointed out to them. Second term. Three 1-hour recitations.

### ANIMAL HUSBANDRY.

**Breeds and Breeding.** A practical course will be given in the study of domesticated animals, and a consideration of the fundamental laws underlying their production. Three 1-hour recitations.

**Dairying.** In this course lectures will be given on the principles of modern dairying and on the manufacture of butter, cheese, and other products. Practice work in the operation and repair of dairy machines will be required of all students. The use of the Babcock test, and other apparatus for the detection of adulteration of milk will be fully explained. One lecture and two laboratory periods. Second term.

**Feeds and Feeding.** In this course a study of the various feeding stuffs will be taken up. The balancing of rations and their adaptation for maintenance, development of bone and muscle, production of milk and butter, and for maintaining and fattening farm animals will be discussed and explained. Three 1-hour recitations and one laboratory period. Third term.

**Stock Judging.** Scoring, judging and classifying the various classes of farm live stock will form an important part of this course. After the student has become proficient in the use of the score card, work will be given in comparative judging and show-ring placing. The standard of excellence as established by the several breeders' associations will also be given some attention. First term. Two laboratory periods.

### HORTICULTURE.

**Orchards.** A study of orchards as to location, site, exposure, cultivation, fertilization, planting, pruning, spraying, thinning, harvesting and marketing. Book to be used, *Principles of Fruit Growing*, by L. H. Bailey. Three 1-hour lectures and one laboratory period per week. First term.

**Propagation and Pruning.** A study of budding, grafting, and other methods of plant manipulation and propagation, with a course in the principles and practice of pruning. Three lectures and one laboratory period per week. Second term.

**Small Fruit and Trucking.** A course in the management of small fruit plantations and truck gardens, following much the same order as the orchard course. Particular attention will be given to the construction and management of hot beds as well as to the principal small fruit and vegetable crops of the section. Book: *The Principles of Vegetable Gardening*, Bailey. Three lectures and one laboratory period per week. Third term.

### FARM MECHANICS.

**Wood Work.** This will include the care and use of wood working tools. It will be made as practical as possible. The majority of the exercises will consist of the construction of articles that will be needed on the farm, such as gates, fences, wagon beds, and other farm conveniences. First term. Two laboratory periods. Alternates with forge work.

**Forge Work.** This course will include welding and shaping of iron and handling of steel. Considerable attention will be paid to the making and tempering of small hand tools. A student after taking this course will be able to do all of the ordinary repairs of farm machines and other blacksmithing that will be necessary in farm work. First term. Two laboratory periods per week. Alternates with woodwork.

**Farm Machinery.** A study of the principles of construction and operation will be made. Considerable time will be given to studying the individual parts of the different farm machines, by taking them apart and assembling them. Considerable time will be devoted to motors, especially gasoline and steam engines. Third term. Two laboratory periods.

**Farm Buildings and Fences.** The strength and adaptability of the materials available for construction will first be determined. Principles of construction will be studied, and considerable time given to planning the different farm buildings with especial regard to convenience and sanitation. The use of concrete on the farm will be pointed out and principles of concrete construction illustrated. Laboratory practice will constitute an important part of the work. One lecture and two laboratory periods per week.

**Farm Engineering.** Instruction will be given in the use of the instruments necessary in surveying farm lands, terracing, and locating of roads. Considerable time will be given to the location of farm buildings, roads, terracing, leveling, and tile drainage. One lecture and one laboratory period per week.

**Plumbing and Pipe Fitting.** A short course in plumbing and pipe fitting will be given in connection with Farm Buildings. It will consist of the location and planning of the water supply and drainage away from the home, and the proper laying out of a perfectly sanitary system of plumbing for all buildings. The proper assembling and selection of the material needed for a complete job, and the calking of all joints, etc., will be fully studied.

### VETERINARY SCIENCE.

1. Consists of lectures in the anatomy and physiology of the horse, with brief notice of the variation occurring in the other

farm animals. Lectures on *Materia Medica* cover the more commonly used drugs and medicines, paying particular attention to the action and dosage of the drugs. First term; three hours per week.

2. Consists of lectures on Theory and Practice, and Surgery; deals with the most common diseases of the horse and cow and the minor operations that are performed on these animals and the care of surgical and accidental wounds. Second term; two hours per week.

3. Consists of free clinics held at the Veterinary Hospital. One hour per week; second and third terms.

4. Consists of lectures on Obstetrics and Dentistry. Two hours per week; third term.

#### **AGRICULTURAL CHEMISTRY.**

This course is planned to prepare the student for intelligent study of the chemistry of soils, fertilizer and foods. At first the elements and compounds most important to agriculture will be taken up. The composition of farm crops, and the application of chemistry to plant and animal life will be studied. Text: *Chemistry of the Farm*, by Warrington. This course consists of three lectures during last half of the year.

#### **FORESTRY.**

A study of forestry as applied to farm woodlands. How to secure a stand of timber, how to thin, to protect, and harvest the forest crop. Second half-year. Two 1-hour lectures and one 2-hour practice period.

#### **THREE-MONTHS OR WINTER COURSE IN AGRICULTURE.**

Short courses of instruction in agriculture and related subjects are offered for the benefit of those who are engaged or expect to engage in farming, and yet who are so situated that they cannot undertake a full college course of study. This course is given during the winter when work is least pressing and the time can best be spared. The course consists principally of the regular work provided during the winter term of the one-year course, with such additional elective subjects as the student finds he can conveniently carry upon consultation with the President of the College.

Those desiring to take this course can familiarize themselves with the nature and character of the work by referring to the schedule of the one-year course for the second term. Considerable extra work may be taken if desired. Certain subjects may also be dropped and others elected to meet the wishes of the student. Requirements for admission to this course and the

cost have already been mentioned and need not be again detailed here. Those intending to take this course of instruction are urged to write to the College authorities some time in advance so that suitable arrangements can be made for them.

### SHORT COURSES FOR FARMERS.

**In Cotton Industries, Cereal Production, Live Stock Farming and Horticulture.**—The popularity of the Cotton School conducted annually by the College of Agriculture and the desire for instruction on a wider range of subjects pertaining to an advanced agricultural practice makes the re-adjustment of the work of the Cotton School advisable. While this course is retained and its character improved in many particulars, other courses have been added designed to meet the needs of Georgia farmers who desire to specialize in cereal production, animal industries and horticulture. Those attending the short courses for farmers next winter will therefore have an opportunity of specializing along four distinct lines, which will permit former students to return and continue their studies, and enable new students to specialize along the line of primary interest to them.

The Farmers' Short Courses are held in Agricultural Hall, one of the best academic buildings in the south, and admirably equipped in every respect for instruction in all phases of agricultural industries. The College of Agriculture has a staff of twenty experts, and those attending will have the privilege of conferring with these men and acquiring as much information outside of the regular course as their time will permit. The courses are intensely practical, and according to the testimony of former students have repaid them many times over for the expenditure of time and money required to take them. Shakespeare said, "There is a tide in the affairs of men which taken at the flood leads on to fortune." These courses afford the opportunity thousands of Georgia farmers have been looking for. Do not neglect this chance to increase your knowledge and advance your status as a citizen.

The object of these courses is to present this information at a minimum of cost and in a concrete form, so that the facts may be applied successfully in every-day work on the farm. Admission to this course is free, a registration fee of \$1.00 being charged to cover incidental expenses. The cost to the student therefore, consists of board while in Athens and railroad fare, or from \$15.00 to \$25.00. This means that practically a free course of instruction in the technique of cotton production is provided for the farmers of Georgia.

The ages of those attending this course range from 18 to 60

years, so that the students entering are a representative body of men. This course is not intended for irresponsible boys, but for those who are actually engaged in farming, and the instruction has been so arranged as to provide the largest amount of useful information in the shortest possible time. The success of these courses means that they will be continued as a permanent feature of the work of the State College of Agriculture. The session for 1913 will open on January 6th, and continue for ten days. The work will be so arranged that those desiring to remain for more than ten days may do so.

#### COURSES IN COTTON INDUSTRIES.

**Ten Lectures on the Soil**, including a discussion of its origin, character, composition and utility for crop production.

**Ten Lectures on Fertilizers**, including a discussion of the essential elements of plant food and methods of purchasing, mixing and applying these various constituents to the soil for the purpose of producing maximum crops at a minimum of cost.

**Five Lectures on the Cotton Plant**. These will include a consideration of the origin and composition of the plant, and conditions most favorable for its growth and development, and will include a discussion of varieties.

**Five Lectures on Cotton Cultivation**. These include methods of seed selection which may be adopted and successfully practiced by farmers for the improvement of the quality of the staple.

**Five Lectures on Cotton Diseases**. The principal diseases affecting cotton, the causes so far as known, and the best methods of combating and eradicating them will be discussed.

**Five Lectures on Cotton Insects**. In these lectures the history, characteristics, and the best methods of controlling the depredations of the various insects attacking the cotton plant will be discussed.

**Five Lectures on the Chemistry of Cotton By-Products**. These lectures will deal with the preparation, history and commercial uses of such by-products as cotton seed oil, soap, paper, cellulose, gun cotton, artificial silk and hair, and viscose, which is used in making artificial leather and building material. Samples of the various by-products will be used for illustrative purposes.

**Five Lectures on Cotton Machinery**. The different forms of plows, cultivators and seeders which may be utilized so as to economize labor and increase the efficiency of soil cultivation will be considered.

**Ten Demonstrations in Cotton Grading**. In this course the student will have an opportunity to handle and grade ten or more samples of cotton each day just as the operation is performed on

the warehouse floor. The score card will be used for recording his results and the instructor will then compare the various samples with standards and explain to the student wherein he has made a mistake. Cotton grading can be successfully taught and made the means of saving several millions of dollars annually to the farmers of Georgia. This feature of the work will be emphasized more strongly than ever in 1913.

**Three Lectures on Cotton Marketing.** These lectures will include a discussion of the business of receiving, handling and shipping cotton.

The necessity for instruction in cotton industries will be made apparent by the fact that there is a loss in the value of the staple as nature produces it and as placed upon the market of between ten and twenty millions of dollars every year in Georgia. This loss is largely avoidable and will be reduced materially when the handling and grading of cotton is made a part of the knowledge of the farmers in all parts of the State.

#### COURSE IN CEREAL PRODUCTION.

This course is broader than its name implies, and includes a consideration of seed selection and crop rotation—two matters of vital importance to the welfare of Georgia agriculture. The widespread interest in increasing the yield of corn and growing a greater variety of cereals constitutes the primary reason for offering this course. The department of agronomy has every facility for carrying on the work in the most effective manner. Experiments in corn breeding and cereal production have been conducted in the demonstration field for several years, and furnish an abundance of data of vital importance to the students specializing along these lines. The course is as follows:

**Five Lectures on Insects Injurious to Grain.** A study of the life history of the more injurious insects will be made with suggestions as to methods of control.

**Ten Lectures on Seed Selection.** All cereals may be greatly improved both as to yield and quality of grain through seed selection. Experience shows that the seed used in Georgia should be produced at home. The data obtained in the College demonstration field will be used as the basis of instruction.

**Ten Lectures on Crop Rotation.** Crop rotation is undoubtedly the solution for smaller acreage and higher production per acre, as well as a means of having more than one crop for market. Different systems of rotation will be studied, also the influence of the rotation on general farm work. Special attention will be given to cover crops and their use in the state.

**Ten Demonstrations in Cereal Judging.** Cereal judging will include a systematic study of varieties by the score card, by

actual measurement and scales, as well as germination tests. Students taking the course in cereal production will also elect fertilizers, soils and farm machinery.

#### COURSE IN LIVE STOCK FARMING.

Georgia farmers have more than fifty million dollars invested in live stock, and in spite of this fact, at least one-tenth of the value of the cotton crop is put into renewing live stock industries which should be developed within the borders of the state. On this account, a ten-day course of instruction for farmers who desire to specialize in live stock farming has been arranged at the College. The course is as follows:

**Ten Lectures on Feeds and Feeding.** This course will review the courses of feeding stuffs available for the maintenance of live stock, special emphasis being laid on the value of cotton seed and its by-products, and all other materials produced in the state which can be utilized to good advantage in animal nutrition.

**Ten Lectures on Breeds and Breeding.** In this course the origin, history and development of the various breeds of horses, cattle, sheep and swine adapted to Georgia will be considered.

**Ten Lectures on Diseases of Farm Animals.** This course includes a review of the methods used to control and eradicate contagious diseases of live stock, including U. S. quarantine regulations concerning the transportation of animals affected with contagious diseases and disease-producing parasites; a consideration of some of the more common diseases and ailments of farm animals, together with means of prevention and methods of treatment.

**Five Clinics** will be held to demonstrate the method of administering Anti-Hog Cholera Serum and other biological products, and a demonstration of the method of examination of horses for soundness, together with a consideration of the seriousness of various blemishes and unsoundnesses from an economic standpoint.

**Five Demonstrations in Stock Judging.** For the student electing the live-stock course practical work will be given in the afternoons in scoring farm animals, as well as actual work in showing placing. Students taking the course in live stock farming will also elect fertilizers and soils.

**SCHEDULE OF RECITATIONS--SHORT COURSES FOR FARMERS.**

January 6th to 17th, Inclusive 1913.

Registration Day is Monday, January 6th, 1913. Bear this date in mind.

**WHY FARMERS SHOULD ATTEND THESE COURSES.**

The boll weevil will reach the state within a period of three years, and it becomes imperative for the farmers of Georgia to understand the principles of plant and animal breeding, seed selection, more about crop rotation, fertilizers, and how to utilize lint cotton to the best advantage. The Farmers' Short Courses afford these opportunities at a minimum of cost to every white citizen of the state.

Those desiring further information should write for our special circular on the short courses.

**COURSE IN HORTICULTURE.**

Many persons are intensely interested in securing more definite knowledge concerning orchard management. This is especially true since the wonderful possibilities of apple production in north Georgia have become more generally appreciated. To meet this public demand a specialized course in horticulture has been provided.

**Five Lectures on Varieties of Fruit.** In this course will be given a discussion of the varieties of apples, pears, peaches, etc., as recommended for commercial culture in the various sections of the state by the Horticultural Society.

**Ten Lectures on Orchard Management.** These will include discussions of site, location, choice of plants, planting, tillage, cover crops, fertilization, pruning, thinning, frost, spraying, picking, packing and selling.

**Five Lectures on Diseases of Fruits.** Brown Rot, Apple Scab, Pear Blight, and other diseases incident to the culture of the tree fruits in Georgia will be considered.

**Five Lectures on Insects of Fruits.** The Codling Moth, Plum Curculio, Peach Borer and other insects incident to the culture of tree fruits in this state will be discussed.

**Ten Demonstrations in Spraying and Pruning,** consisting of practice in mixing and applying sprays, fighting frost, pruning trees, etc.

Students taking the course in horticulture will also elect fertilizers, soils and farm machinery. The schedule of recitations for these short courses is shown on the opposite page and is self-explanatory.

**ANNUAL MEETING OF FARMERS' ORGANIZATIONS.**

The Georgia Dairy and Live Stock Association, the State Horticultural Society, and the Georgia Breeders' Association held their annual meetings at the College, January 16 to 18, 1912. A special conference for farmers' wives was held on January

19th. An attempt was made to reach and serve the interests of all classes of citizens engaged in agriculture. The attendance was unusually good, and since those engaged in horticulture or dairying are often interested in both lines of farming, the joint meeting of the several associations presents many advantages to the members and saves both time and money. By meeting at the College the several organizations are afforded an opportunity to study the progress made in agricultural science during the year and to confer with the experts in charge of the several departments. The student body is greatly benefited by the chance afforded for personal contact with practical men who are making a success of the lines of work in which they are engaged. Thus several important purposes are attained through the arrangement of a joint conference of the organizations chiefly concerned in promoting the welfare of Georgia farmers. A determined effort will be made to increase the membership of all the organizations and make the meeting of 1913 the best which has ever been held. Plans have already been made to secure the services of several experts of national reputation to address the several organizations at the next annual meeting.

The advisability of holding such a general conference is shown by the fact that the fertility of our lands is decreasing, the depreciation of insect pests and plant diseases becoming greater each year, and the purchase and use of fertilizers more necessary. How shall the farmer obtain the needed information with reference to these matters save through some such clearing house for agricultural information as the State College of Agriculture affords? Education measures the success and progress of a nation. We have neglected agricultural education in America because of our marvelous natural resources. But nature has rebelled, and now we must inaugurate crop rotations and give greater attention to the development of our live stock industries. There is need, therefore, for the dissemination of definite information relating to farm life and work in order that our present agricultural supremacy as well as the prosperity of the farmer may be assured not only for the present but for the future.

The meeting for 1913 will be held from January 21 to 23, as there is more leisure on the farm at this time than at any other season. Every farmer should take a holiday and accord the same privilege to his wife. That such gatherings are beneficial is shown by the fact that 1,000 farmers attend meetings of this kind in some of the states where the agricultural college has been established on a substantial basis. Our farmers will find it quite as beneficial to them to attend these gatherings as those living in other states. Since the cost will only include railroad fare and

one dollar a day for board while in Athens, there can be no question as to the advantages which will accrue to the individual who attends these gatherings and learns about the new facts of agriculture which it is necessary for him to know in order to conduct his business along the most profitable lines.

#### EXTENSION TEACHING.

It is the purpose of the College of Agriculture to aid all educational activities which are being carried forward in the State. The fulfillment of this purpose is one of its greatest obligations to the State and every effort will be made of further the work of extension teaching. Two great ends are to be subserved by work of this character. First, the systematizing of the educational activities of the state and the raising of these to a higher level of efficiency. Second, the dissemination of useful knowledge which has accumulated in recent years, but is not as generally appreciated as it should be, and which cannot be brought to the attention of adults and those remotely situated from the College save through extension agencies. Recognizing the importance of this character of work, the General Assembly of Georgia during the annual session 1911 appropriated \$40,000.00 to the State College of Agriculture to be used for extension teaching.

In accordance with this action of the legislature, the Board of Trustees have reorganized the work of the several departments constituting the College along lines which permit of their carrying on their proper share of extension work in the most efficient manner possible. There is a general extension office with a secretary in charge. Through this office the extension schools, educational trains, farmers' institutes, and miscellaneous meetings are largely organized and directed. Every member of the College staff gives some of his time and effort to extension activities.

The department of agronomy is laying down series of test plats on different type soils of the State to secure data concerning their principal defects, and what forms of fertilization and crop rotation are best adapted to build them up. This department maintains a twenty-acre field for the purpose of carrying on investigations relative to corn and cotton breeding, crop rotations, fertilizers and soil management. This information is invaluable to the people of the state and is distributed in bulletin form through the meetings held by the extension service.

The traveling field representatives of the department of agronomy are also engaged in advising the farmers relative to the improvement of certain strains of corn and cotton which are being developed through seed selection or hybridization.

The department of agricultural chemistry has undertaken a

physical survey of several counties and is making analyses of all the type soils found therein. A close coöperation of necessity exists between the departments of agronomy and agricultural chemistry in this work, which is of the most fundamental character, since it means to ascertain the soil deficiencies and determine the methods by which these can be overcome. Several men are employed by this division.

The department of animal husbandry is carrying on work along several lines. First, it is endeavoring to co-operate with farmers in the purchase and dissemination of improved breeds of live stock so that breeding centers may be established in a number of communities. Secondly, an expert is advising dairy farmers as to the best types of barns and silos to erect, and supervising the feeding and management of a number of dairy herds as well. On the College farm more than 150 head of live stock are maintained for the purpose of securing data and information to be distributed in bulletin form and to be used at extension schools and other meetings held throughout the state.

An instructor in poultry husbandry has charge of this special line of work, and is prepared to advise with all interested in this important industry.

The department of horticulture is carrying on extension work in connection with the peach, apple, pecan and trucking industries. Demonstrations on spraying, pruning and orchard heating and other fighting apparatus will be made during the year.

The department of farm mechanics is prepared to assist farmers in the preparation of plans for farm houses, barns and other outbuildings necessary on an up-to-date farm.

The department of cotton industry is distributing seed of the Sunbeam variety which is thought to be resistant to anthrancose, and is engaged in investigating many vital problems associated with the more economic production of cotton in the state.

The department of veterinary medicine has undertaken the manufacture of hog cholera serum. This serum is to be distributed under the direction of the state veterinarian, and not by the College. It is possible through the use of the serum to largely control the destruction wrought by hog cholera. Its importance, therefore, needs no further emphasis. This department is also co-operating in every possible way with those agencies which are endeavoring to eradicate the cattle tick, and to control many diseases which cause serious loss to Georgia farmers.

Some of the most effective work done by the College is through the organization of the Boys' Corn Clubs and Girls' Canning Clubs. Separate departments are maintained for this service, and the interest has grown to such an extent that six special agents with headquarters at Atlanta, Savannah, Augusta, Tifton,

Rome, and Columbus, are maintained in the field. Georgia is the only state to provide local agents for the inspiration and redirection of the efforts of her boys and girls. This constitutes one of the most important lines of activity being carried on through the extension work of the College. This is fully shown by the data printed elsewhere.

The various departments enumerated act as a clearing house of agricultural information for Georgia farmers.

During the year 328 meetings were held, and 43,623 people reached, exclusive of those served through correspondence and by distribution of bulletins. Over 73,965 miles of travel were entailed to render this service, which included the organization of nineteen itinerant schools, attended by 4,800 people; 101 farmers' institutes, attended by 19,460 people; boys and girls' clubs in 95 counties, with an aggregate enrollment of 6,320, twelve teachers' institutes, attended by 1,305 teachers; 100 miscellaneous meetings, attended by 23,042 people. In addition over 200 people attended the meetings of the various organizations held at the College.

It is believed that one of the most efficient ways by which the farmers can be served is through the organization and promotion of extension or traveling schools. Nineteen four-day schools were held during the spring of 1912, at the following places: Washington, Eatonton, Louisville, Carrollton, Barnesville, Montezuma, Edison, Bainbridge, Quitman, Valdosta, Douglas, Moultrie, Pitts, Jackson, Fayetteville, Dalton, Ellijay, Hartwell, Demorest. As the schools are still in progress at this writing, the complete record of attendance cannot be given.

The response to this work has been most gratifying, and judging from the expressions of those in attendance, it is the most satisfactory method of reaching farmers that has yet been devised. The demand for meetings has been such as to make it clear that the present appropriation will be insufficient to meet the requirements of the work. These schools are conducted in a thoroughly practical manner. Among the topics discussed are the mixing and application of fertilizers, soils and soil cultivation, tillage and tillage implements, the selection and improvement of seed corn and cotton, diseases of live stock, dairying, fruit and truck problems, spraying and orchard management, the feeding and care of live stock. Demonstrations constitute an important feature of these schools. For instance, a clinic is held at which all the sick animals brought in are treated by a competent veterinarian. There are also spraying, dairy and seed testing demonstrations. Charts, models and other materials are carried along and a number of the lectures are illustrated. In this way the subject matter

is presented in a graphic and practical manner, so practical indeed that many farmers who have attended the schools found it feasible to put the suggestions made by the instructors into practice with great benefit. The value of a system of extension teaching of this character can never be accurately estimated, but those who have seen the marvelous improvement in farm practice which has followed in the wake of limited effort in this direction realize fully what a systematic extension bureau may accomplish in stimulating an interest in better methods of farming.

Another feature emphasized by the extension department is the organization of boys' and girls' industrial clubs. The boys are being encouraged to grow corn under the specific rules and regulations laid down by the College, and the girls to organize canning clubs and to take a greater interest in cooking and sewing. Wonderful progress is being made this year. Ninety-five counties have been organized as follows, the figures in brackets indicating the number of girls enrolled in the several counties, and show a total of 5,059 boys and 1,261 girls:

Ben Hill, 40; Brooks, 1; Banks, 82 (83); Bulloch 1; Burke 20; Bibb 31; Baldwin, 67 (28); Bartow, 127 (22); Clarke 40 (50); Crawford, 210; Coffee, 39; Colquitt, 98; Columbia, 84; Catoosa, 20; Chattooga, 67; Cobb, 22; Coweta, 66; Carroll, 40; Clayton 27 (25); Campbell, 53; Cherokee, 9; Douglas, 135; Dooley, 23; DeKalb, 113 (127); Decatur 20; Effingham, 12; Emanuel, 35; Elbert, 27; Early, 95; Franklin, 27; Fayette, 46 (65); Floyd, 102; Grady, 33; Greene, 82; Gwinnett, 14; Gordon, 80; Hancock, 175 (116), colored, 97 (155); Haralson, 67; Hall, 50 (31); Henry, 23; Heard, 21 (8); Hart, 57; Habersham, 74; Houston, 48 colored; Jenkins, 35; Jones, 68; Jackson, 87; Jeff Davis, 17; Jasper, 36; Irwin, 33 (14); Laurens, 228 (154); Liberty, 18; Lowndes, 16; McDuffle, 14; Murray, 34; Milton, 13; Mitchell, 21; Madison, 82; Morgan, 22; Macon, 37 (40); Newton, 1; Oglethorpe, 29; Oconee, 109 (12); Pike, 43; Pulaski, 54 (34); Paulding, 174; Putnam, 98 (31); Polk, 64; Pierce, 126; Rockdale, 20; Randolph, 44; Richmond, 48; Schley, 20; Screven, 93 (57); Sumter, 19; Stewart, 96 (60); Stephens, 54; Tift, 17; Taliaferro, 9; Thomas, 57 (20); Tattnall, 54; Troup, 28; Twiggs, 68 (19); Tolbert, 2; Terrell, 1; Upson, 33; Walton, 75; Wilkinson, 3; Washington, 11; Worth, 4; Wayne, 13; Ware, 37; Wilcox, 104 (128); Walker, 48; Whitfield, 56.

In this work the extension department has had the sympathetic coöperation of the great majority of the county school commissioners, of the Farmers' Union, the State Department of Agriculture, and a number of congressmen. Liberal prizes have been offered by a number of organizations and individuals so that the

boys and girls entering these contests will have the privilege of competing for premiums totalling several thousand dollars. Through the organization of these clubs the attention of the boys and girls is being directed to a more thorough appreciation of the possibilities of the soil, the need of using fertilizers and acquiring a consistent knowledge of plant and animal life. In other words, agricultural instruction of a fundamental character is being introduced into the schools of the state and the fact that the boys have often been able to produce 100 bushels of corn per acre where their fathers were contented with 10 to 15, has demonstrated the great cultural and economic value of work of this character.

Speakers will be sent from the College to address farmers' gatherings or to discuss subjects of special interest to a given community. The officers of the College are working in coöperation with the county school commissioners, and lecturers will be sent to teachers' institutes for the purpose of discussing ways and means by which instruction in agriculture in the common schools as provided for by law may be inaugurated. There is no service which can be rendered the people of the state at this time more important than that of fostering the teaching of the underlying principles of agriculture in the public schools. The teachers are not to blame for the apparent neglect of this subject, as there has been no channel through which they might obtain the needed information.

Another feature of extension work which the College is fostering is correspondence with farmers. Thousands of letters are annually answered, giving definite information relative to fertilizers, soils, crops, care and management of live stock, orchards and gardens. Every farmer in the state is invited to take advantage of the free correspondence course now conducted so extensively by the College, for in this way at the cost of a two-cent stamp any individual may obtain information worth a great deal of money to him with the least possible effort, and without the necessity of purchasing expensive books or taking a long trip to acquire the information. The College stands ready through its staff to assist every organization and every individual entitled to its service free of cost. As the College is now in position to organize a number of extension schools for teachers, it is believed that substantial progress may be anticipated.

#### FARMERS' INSTITUTES.

The Board of Trustees of the University organized a farmers' institute system on January 16, 1903. When the Board of Trustees of the Agricultural College was created the management of the farmers' institutes was transferred to it. For several years

the institutes were under the charge of Hon. Harvie Jordan, who, however, found the work so onerous and exacting that he decided to withdraw from it on November 1, 1907, when the work was turned over to the direction of Andrew M. Soule.

One hundred and one farmers' institutes were held during the past year at the following places: Ludowici, Georgetown, Coleman, Ellaville, Columbus, Blakely, Eastman, Edison, McRae, Ft. Gaines, Baxley, Lumpkin, Blackshear, Preston, Hahira, Leesburg, Springfield, Camilla, Pembroke, Moultrie, Reidsville, Sylvester, Vidalia, Perry, Nashville, Swainsboro, Vienna, Ashburn, Cordele, Warm Springs, Waynesboro, Newnan, Millen, Jonesboro, Sylvania, Thomaston, Statesboro, Forsyth, Sandersville, Union City, Lexington, Dublin, Alpharetta, Danburg, Cedartown, Buchanan, Grovetown, Carrollton, Madison, Griffin, Jeffersonville, Eton, Barnesville, Adairsville, Gray, Franklin, Jackson, Dallas, Macon, Commerce, Danielsville, Decatur, Elberton, Oglethorpe, Conyers, Hartwell, Covington, Gainesville, Monroe, Clarkesville, Clayton, Valdosta, Hiawassee, Quitman, Blairsville, Milledgeville, Ellijay, Eatonton, Cairo, Jasper, Bainbridge, Dalton, Newton, Ringgold, Woodland, Watkinsville, Reynolds, Buena Vista, Americus, Summerville, Cumming, Hazlehurst, Fayetteville, Jesup, Waycross, Rochelle, Tifton, Mt. Vernon, Sparta, Trimble, Homer.

Institutes were offered to the remaining counties, but for various reasons satisfactory arrangements could not be made for the meeting.

From one to three speakers were sent to the following places where either farmers' meetings or educational rallies were held; if speakers were sent more than once, the number is indicated in brackets:

Rome (2), Macon (5), Savannah, Columbus, O., Monroe (3), Atlanta (20), LaGrange (2), Cartersville (2), Barnesville, Fayetteville, Nashville, Decatur, Temple, Belmont, Comer, Tybee Island, Augusta (3), Clarkesville, Washington, D. C., Bartow, Royston, Nacoochee, Greensboro, Toronto, Can., Washington, Eatonton, Dublin, Watkinsville, Madison (2), Perry, Oglethorpe, Dixie, Lithia Springs, Prince, Statesboro, Danielsville (2), Jefferson, Alpharetta, Cobbtown (2), Tallulah Falls (3), Dallas, Gainesville (2), Newnan, Hartwell (2), Cornelia (2), Blackshear, Canton, Knoxville, Tifton, Dalton, Americus, Sparta, Winterville, Thomaston, Clayton, Hogansville, Trimble, Hebron, Dodge, Columbus, Thomasville, Belhaven, Lumpkin.

Representatives of the College addressed teachers' institutes at the following places during the year: Dawson, Thomasville, Hahira, Atlanta, Dallas, Macon, Bainbridge, Tifton, Zebulon, Calhoun, Cuthbert, Cairo.

The work of the past year was more successful than ever before. An agricultural awakening is sweeping over Georgia, and if the increase in enthusiasm is as great in 1912 as it was in 1911, a larger sum of money must be appropriated by the state or institutes can not be held in many communities seeking them.

It is a pleasure to acknowledge the cordial coöperation and support extended to the institute work by leading citizens in every section where representatives of the College went; but for their assistance as well as that of the local press the meetings would not have been successfully organized. The list of meetings as enumerated above does not include a large number of points visited by representatives of the College to address, for instance, meetings of the Farmers' Union, and other organizations of agricultural workers.

Representatives will gladly be sent to meetings of any organizations which have the welfare of the farmer at heart, and are endeavoring to disseminate information which will enable him to conduct his operations more successfully. A list of the county institute officers follows:

County	President	Secretary
Appling	A. H. Tillman, Surreyn	Ira Leggett, Baxley
Baker	M. A. McRainey, Elmodel	
Baldwin	Geo. Hollinshead, Jr., Milledgeville	
Bartow	Dr. J. P. Bowdoin, Adairsville	Geo. Veach, Adairsville
Berrien	R. D. Seindel, Ray's Mill	W. D. Wills, Adel
Bibb	W. S. Brooks, Macon	
Brooks	W. W. Rast, Pidcock	J. W. Patterson, Pidcock, 1
Bryan	J. B. Bacon, Pembroke, 1	E. Benton, Letford
Bullock	A. M. Deal, Statesboro	
Burke	N. L. McNorrel, Shell Bluff	Thos. Quinney, Waynesboro
Butts	J. J. Mays, Jackson, 5	S. Kirby Smith, Flovilla
Calhoun	E. L. Smith, Edison	Julian Coleman, Edison
Campbell	Robt. Tatum, Palmetto	J. C. Langston, Fairburn
Carroll	W. L. Nix, Calvin, 2	Y. W. Cunningham, Carrollton, 6
Catoosa	W. E. Bryan, Ringgold	
Chattooga	Arthur Wheeler, Summerville	Lee McWhorter, Summerville
Clay	R. C. McAllister, Ft. Gaines	J. W. Suttlive, Ft. Gaines
Clayton	J. M. Swinney, Forest Park	L. J. Brown, Jonesboro
Colquitt	W. N. Manning, Moultrie	G. W. Newton, Moultrie
Coweta	R. S. Redwine, Newnan	Garland Jones, Newnan
Decatur	J. T. Pittman, Attapulgus	
DeKalb	J. C. Maness, Ingleside	L. S. Bottenfield, Ingleside
Dooly	J. M. Woodward, Vienna	
Early	D. W. James, Blakely	Jos. Freeman, Blakely
Effingham	J. W. Reiser, Clyo, 2	B. W. Cubbedge, Guyton
Elbert	V. H. Jones, Elberton, 4	C. C. Whitesides, Elberton
Emanuel	F. C. Brannon, Swainsboro	S. J. Tyson, Swainsboro
Fayette	A. O. Blalock, Fayetteville	W. M. Speer, Fayetteville
Forsyth	T. R. Williams, Cumming, 1	E. F. Smith, Cumming
Gilmer	B. S. Holden, Ellijay	J. T. Deweese, Ellijay

County	President	Secretary
Grady	J. S. Weathers, Cairo	
Habersham	W. H. Maxwell, Jr., Clarkesville	
Hall	W. E. Deal, Gainesville, 4	E. W. Johnson, Gainesville
Hancock	M. L. Duggan, Sparta	
Haralson	J. S. Jeter, Waco	
Hart	A. J. McMullan, Hartwell	E. Beall, Buchanan
Heard	A. H. Daniels, Newnan	T. B. Thornton, Hartwell
Houston	W. E. Vinson, Dunbar	
Jackson	L. G. Hardman, Commerce	A. F. Smith, Perry
Jones	F. M. Stewart, Gray	J. D. Chandler, Commerce
Laurens	J. T. Smith, Dublin	J. E. Morton, Gray
Liberty	J. H. Parker, Ludowici	
Lowndes	O. M. Smith, Valdosta	W. H. Hughes, Ludowici
Madison	W. S. Sanders, Danielsville	
Marion	B. T. Peacock, Buena Vista	J. N. Griffith, Danielsville
Meriwether	J. M. Barnes, Greenville	G. R. Fleming, Tazewell
Milton	T. Shirley, Alpharetta	Robt. Crowder, Greenville
Mitchell	J. P. McRee, Camilla	R. L. Bowden, Alpharetta
Monroe	Thos. F. Scott, Forsyth	E. M. Davis, Camilla
Montgomery	W. B. Kent, Mt. Vernon	R. S. Fort, Forsyth
Morgan	G. D. Perry, Madison	
Murray	Dr. S. A. Brown, Eton	C. T. Owens, Eton
Newton	Henry Odum, Covington	J. A. Cowan, Covington
Oglethorpe	W. H. Faust, Lexington	W. A. Broach, Point Peter
Pickens	G. M. Bell, Jasper	J. H. Little, Jasper
Pierce	Q. A. Smith, Blackshear, 2	R. D. Howard, Blackshear
Pike	T. O. Gallaway, Barnesville	J. R. Leavall, Barnesville
Polk	J. S. King, Cave Spring, R.D.	J. M. Hamrick, Fish, R. D.
Putnam	W. C. Wright, Eatonton	
Quitman	H. M. Kaigler, Georgetown	C. G. Burnett, Hatchers
Rabun	L. M. Chastain, Burton	
Randolph	R. F. Crittenden, Shellman	Oscar Crittenden, Shellman
Rockdale	W. L. Peak, Conyers, 5	L. A. Bowen, Conyers, 4
Schley	B. F. Green, Americus, 2	R. L. Perry, Ellaville, 2
Screven	J. H. Evans, Sylvania	W. C. Howard, Sylvania
Stewart	W. S. Boyett, Lumpkin	W. T. Holliday, Lumpkin
Talbot	H. T. Woodall, Woodland	W. T. Smith, Woodland
Tattnall	W. H. Purcell, Glennville	I. S. Smith, Reidsville
Taylor	C. B. Marshall, Reynolds	W. T. Ricks, Reynolds
Telfair	A. L. Ryles, McRae	W. F. Whatley, Helena
Toombs	John M. Meadows, Vidalia	W. E. Almond, Vidalia
Towns	Jesse M. Rice, Hiawassee	John M. Johnson, Hiawassee
Troup	F. M. Longley, LaGrange	
Turner	A. S. Bussey, Ashburn	J. Lawrence, Ashburn
Twiggs	A. B. Combs, Jeffersonville	S. C. Jones, Jeffersonville, 4
Union	E. S. Crawford, Blairsville	C. E. Ritch, Blairsville
Upson	W. H. Dallas, Thomaston	J. W. Barron, Thomaston
Washington	I. A. Smith, Tennille	C. L. Willoughby, Sandersville
Wayne	J. P. Shedd, Jesup	R. M. Millikin, Jesup
Webster	C. C. Tracy, Preston	J. R. Stapleton, Preston
Whitfield	C. L. Foster, Dalton	
Wilcox	S. B. Reed, Rochelle	J. O. Newburn, Rochelle
Wilkes }	E. A. Callaway, Rayle	J. Luke Burdett, Washington
Lincoln }	J. W. Mathews, Sylvester	J. R. Miller, Sylvester
Worth		

Those counties interested in securing a meeting for 1912 should correspond with the College at the earliest possible date, so that arrangements may be made for the meetings some time in advance. The appropriation for holding institutes is very small, and as the work has to be done by a few men, it is necessary to prepare a schedule of meetings in advance, so as to save money and conserve the time of the instructors. Correspondence with reference to institutes is invited. If the farmers will co-operate with the College the best work ever done through this arm of the extension service can be accomplished during the year 1912. A printed report containing the principal papers presented before the various meetings held at the College is now being prepared and will be mailed free to any citizen in the State. It contains more than 250 pages, and some excellent papers on agricultural practice in Georgia. Every progressive farmer should have a copy of this report.

For further information, write the

GEORGIA STATE COLLEGE OF AGRICULTURE,

University of Georgia,

Athens, Ga.

# REGISTER OF STUDENTS. 1911-1912

## MASTER OF SCIENCE IN AGRICULTURE.

Dobbs, Willis Franklin	Athens.
Gay, Milton Cleveland	Athens.
Moore, Henry Walter	Athens.
Rast, Loy Edmund	Pidcock.
McLemore, Chester Horace	Mt. Vernon.
Sell, Edward Scott	Athens.
Nichols, Albert Ernest	Rome.

## BACHELOR OF SCIENCE IN AGRICULTURE.

### Senior.

Acree, Walter Green	Blue Springs.
Brinson, Benjamin Lewis	Stillmore.
Childs, Ross Renfroe	Round Oak.
Gay, Milton Cleveland	Athens.
Hutcheson, Robert Oliver	Atlanta.
Kollock, Josiah Tattnall (Forestry)	Atlanta.
Maclean, Charles Mills (For. Elec.)	Savannah.
Whelchel, Robert Fred	Murrayville.

### Junior.

Ballard, Robert Lee	Athens.
Bennett, William Tapley	Maxeys.
Boyett, William Jack	Morris.
Garrison, Frank Davis	Cornelia.
Howard, Robert Powell	Barnesville.
Hurst, William Herbert	Social Circle.
Liddell, Julian Gordon	Atlanta.
Watson, Luther Stephens	Loganville.
Williams, John Benjamin	Fort Valley.
Woodruff, Joseph Grady	Winder.
Wilson, Wilbe Rradford	Athens.

### Sophomore.

Asbury, Thomas Lyne	Crawfordville.
Austin, Won Tin	China.
Baker, Cullen	Hartwell.
Bazemore, Henry Franklin	Sylvania.
Buchwald, Charles	Athens.
Corley, Otis Herman	Athens.

Culpepper, Clarence Boozer .....	Luthersville.
Davis, Jefferson Irwin .....	Quitman.
Dillard, Edward Carleton .....	Arnoldsville.
Harp, Sam Bentley .....	Reynolds.
Hutton, Malcolm Maclean (Forestry).....	Savannah.
Johnson, James Augustus .....	Barwick.
Loyd, DeWitt Wilson .....	Newborn.
Lufburrow, Burley Mathew (Forestry) .....	Oliver.
Martin, Clarence Ellwood .....	Blakeley.
Nanney, William Clyde .....	Brunswick.
O'Kelley, Edward Barbara .....	Gainesville.
Patman, Everette .....	Athens.
Proctor, Lannie Groover .....	Brooklet.
Pugh, John D. .....	Hamburg, Ark.
Redd, Marion Woodville .....	Columbus.
Rowland, Hampton .....	Athens.
Tabor, Paul .....	Danielsville.
Von Sprecken, Theodore Markwalter (Forestry).....	Augusta.
Westbrook, Edison Collins .....	Gainesville.
Wimberly, Olin John .....	Macon.

**Freshman.**

Acree, Lacy S. .....	Resaca.
Adair, Shields Brownfield .....	Bowman.
Barnett, Edward Augustus .....	Washington.
Birch, George Snyder .....	Macon.
Branson, Phil .....	Athens.
Breedlove, Richard Edward .....	Campton.
Burns, William Arnold .....	Commerce.
Burrage, Clarence Hill (Forestry) .....	Saluda, N. C.
Carlton, Henry Grady .....	Monroe.
Chandler, Farish Carter Tate.....	Commerce.
Chandler, Obie Otis Ashmore .....	Commerce.
Cooley, John J. (Forestry) .....	Savannah.
Curtis, William Neel .....	Mansfield.
Davis, Charles Barney .....	Tennille.
Davis, Joe Boyd .....	LaGrange.
Fort, William Ray .....	Morrow.
Freeman, Thomas Cleveland .....	Commerce.
Garner, Charles Gordon .....	Granite Hill.
Gillis, James Lester .....	Soperton.
Gunn, John McKenzie .....	Cuthbert.
Harrell, Joseph E. .....	Gainesville.
Hastings, William Raymond .....	Atlanta.
Head, Broadus John .....	Gainesville.

Headley, Chauncey Green .....	Boston.
Henderson, John Ratin .....	Cartersville.
Hobson, William Grasty .....	Rutherford, N. J.
Jones, Guy Rudolph .....	Norcross.
Jones, Percival Connolly .....	Herndon.
Lane, Louis Alexander .....	LaGrange.
Little, Bird .....	Duluth.
Malone, Kirby Smith .....	Montgomery.
Mitchell, William Grant .....	Social Circle.
Morgan, John Guy .....	Starrville.
McConnell, Bright .....	Commerce.
Neville, George .....	Rabun Gap.
Orr, Robert Graig .....	Athens.
Pedrick, Scott H. ....	Quitman.
Ragsdale, Elmo .....	Cornelia.
Rountree, Ridge .....	Cobbtown.
Shirley, Carlos Vivian .....	Alpharetta.
Stanley, William Kinnebrew .....	Quitman.
Stewart, Benjamin C. ....	James.
Stewart, Joseph C. ....	Athens.
Strickland, Willis Howard .....	Comer.
Sweet, Charles B. ....	Cornelia.
Tomlinson, Charles Summers (Forestry).....	Jacksonville, Fla.
Ward, Alonzo Green .....	Villanow.
Ward, Frank Crawley .....	Lumpkin.
Williams, Dutch Eberhart .....	Athens.
Woodall, James Fletcher .....	Woodland.
Wright, Homer, Jr. ....	Grantville.

## ONE-YEAR COURSE IN AGRICULTURE.

Alford, Columbus Augustus .....	Sylvania.
Barnes, Edwin Davis .....	Atlanta.
Barrow, Hugh .....	Bowdon.
Blackwell, James Harmon .....	Shady Dale.
Blalock, Cicero Herschel .....	Burton.
Busbee, Herbert H. ....	Hogansville.
Callender, William E., Jr. ....	New York.
Cooper, Bennett Duval .....	Hogansville.
Cutler, John Milton, Jr. ....	Macon.
Daniel, Ernest Fletcher .....	Millen.
DeLaPerriere, Arthur .....	Hoschton.
DeLaPerriere, Clarence Homer .....	Hoschton.
Fears, Grady Frank .....	Hampton.
Fenn, Lewis E. ....	Moultrie.
Hine, Henry James, Jr. ....	Rome.

Holliday, Paul L.	Athens.
Houser, William Weeks	Fort Valley.
Houston, William Fred	Jacksonville, Fla.
Ivey, Vivian McHatton	Lizella.
Jackson, Robert Ralph, Jr.	Atlanta.
Jones, Cecil Seaborn	Dublin.
Little, William Harber	Commerce.
Martin, Charles, Jones, Jr.	Flemington.
Moorhead, Orian Alexander	Buckhead.
Morgan, Henry Grady	Buford.
Nash, Davis Acton	Philomath.
Nickerson, Thomas Henry	Athens.
Pirkle, James Princeton	Hoschton.
Rampley, Ottis C.	Carnesville.
Ray, Andrew	Devereaux.
Rogers, Roy	Manassas.
Rushin, Walter Clifford	Macon.
Smith, Lafayette	Clayton.
Strange, Hubert Hollingsworth	Ashland.
Strickland, Joseph Henry	Roswell.
Summers, Young	Sargent.
Surrency, Terrell Ben	Jesup.
Thomas, Joel Edgar	Martin.
Todd, Olin	College Park.
Veach, James Madison	Adairsville.
White, Alton Vestal	Round Oak.
Williams, Larry Emmett	Hull.
Zeigler, John Tatum	Cope, S. C.

#### SPECIAL STUDENTS IN AGRICULTURE.

##### Senior.

Brown, Joseph Emerson	Atlanta.
Campbell, J. Phil.	Atlanta.
Stone, Bonnell Harold (Forestry)	Oxford.
Suddath, Robert O'Neal	Maysville.

##### Junior.

Padgett, Grady	Reidsville.
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##### Sophomore.

Athon, Cincie Davis	Machen.
Cooper, Marion B.	Augusta.
Denmark, Thomas Irving	Valdosta.
Paddock, David Fleming	Brooklyn, N. Y.
Turk, Joseph Lee	Homer.

**Freshman.**

Atchison, James W.	Crawfordville.
Davis, Jesse Walters	Macon.
Eager, C. Anville	Baltimore, Md.
Johnson, Owens	Atlanta.
Martin, Benjamin Edward	Athens.
McCaskill, Allen Robert	Bainbridge.
Thomaston, James Toombs	Carrollton.

**THREE MONTHS COURSE.**

Ellinger, Alfred Mallarme	New York.
Hattaway, William Berrian	Bluffton.
Higginson, William Ledru	Virginia, Ill.
Patton, Mitchell Albert Nevin	Rome.
Roof, Milton Venn	New York.

**SHORT COURSE STUDENTS, 1912.**

Alford, Walter Boswell	Macon, R. No. 4.
Autry, C. L.	Plainville.
Bray, Charles T., Jr.	Riceville, R. No. 2.
Brown, John T.	Athens.
Brown, James Maxwell	Canon, R. No. 3.
Chestnut, George Young	Moreland, R. No. 1.
Cogle, Peter Sherman	Jasper, R. No. 3.
Cobb, J. B. L.	Athens.
Collins, Mary O.	Turnerville.
Cook, Grace Browning	Watkinsville, R. D.
Dailey, Warren Candler	Flippen.
Dean, S. S.	Rome.
Dick, Benedict	Spangler.
Dozier, Olin A.	Athens.
Elder, James Thomas	Farmington, R. No. 1.
Everett, John Estes	Bullard, R. No. 1.
Finney, S.	Chicago, Ill., Bd. of Trade.
Floyd, Dagma L.	Plainville.
Graham, Claud	Point Peter, R. No. 2.
Griffeth, Roy	Danielsville.
Hampton, Hoke	Whitworth.
Henderson, Jno. R.	Cartersville.
Hosea, John	Toccoa, R. No. 3.
Hutchings, Charles Wilmot	Summerville, R. No. 2.
Jennings, George Sam	Plain, R. No. 3.
King, John Middleton	Graniteville, S. C.
Kittle, James	Center.
Lane, Louis Alex	LaGrange.

Long, Roy David	Carlton, R. No. 2.
Moss, Mrs. John L.	Athens.
Munday, Hamilton Bailey	Harlem.
McLean, Ewen	Bladenborough, N. C.
Pearce, Rufus B.	College Station, Texas.
Ray, Arthur	Canon, R. No. 1.
Reaves, Sidney P.	Watkinsville.
Reaves, Rufus K.	Cleveland.
Ries, Fred Cook	Macon, 972 Walnut St.
Robb, C. J.	Camden.
Roper, John Allen	Meriwether.
Smith, Hope Victor	Waycross, R. No. 2.
Smith, Pratt Adams	Milledgeville, R. No. 2.
Spears, Jas. B.	Madison, R. No. 6.
Storey, Wm. Madison	Summerville, R. No. 3.
Strange, Hubert H.	Ashland, R. No. 2.
Tomlinson, G. H.	Putney.
Trawick, Jesse T.	Linton.
Tucker, William Richard	Summerville, R. No. 3.
Whitner, John C.	Porter Springs.
Williams, Robert L.	Nicholson, R. No. 15.
Young, Emmett McDonald	Moreland R. No. 1.

#### SUMMER COTTON GRADING COURSE.

Bell, W. F.	West Point.
Cowart, C. T.	Towns.
Chandler, J. B.	Amboy.
Dennard, R. P.	Pineview.
Dootson, W. R.	Athens.
Gay, M. C.	Athens.
Martin, P. E.	Athens, R. No. 4.
McGee, J. R.	Athens.
Peacock, Clifton	Eastman, R. No. 5.
Roberts, S. T.	Vanna.
Shehee, William Edward	Athens.

**SUMMARY OF REGISTRATION, 1911-1912.**  
**COLLEGE OF AGRICULTURE.**

M. S. in Agriculture .....	7
B. S. in Agriculture .....	88
B. S. in Forestry .....	8
Special Students .....	15
One-year Course .....	43
Three-months Course .....	7
Short Courses .....	48
Summer Cotton Grading Course .....	11
	227
Counted twice .....	2
	225







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